

**lifetimewool**  
more lambs, better wool, healthy ewes



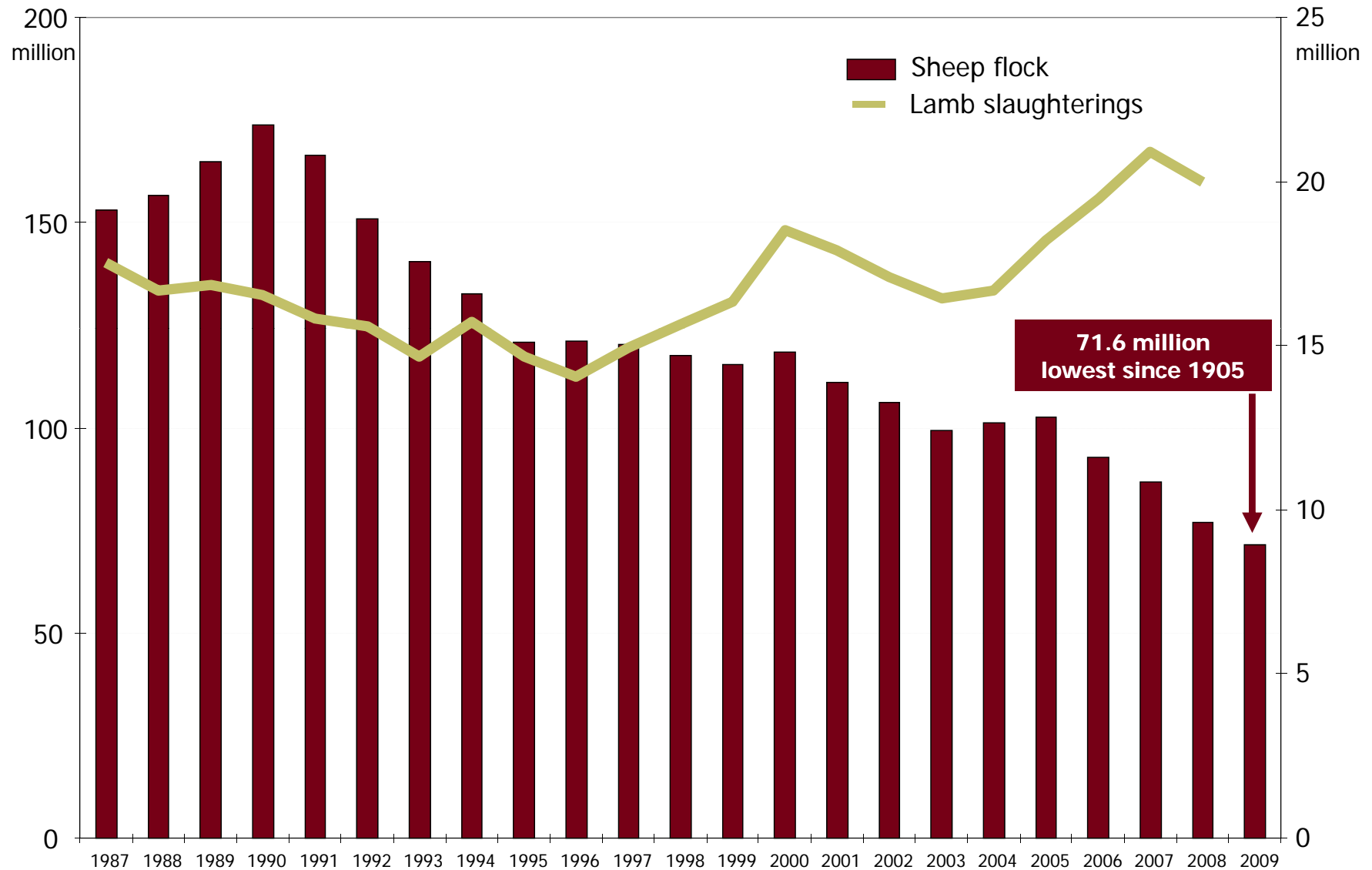
*Making More From Sheep*

# Industry efficiency – ewe and lamb performance

**Dr Jason 'B1' Trompf and Nick 'B2' Linden**

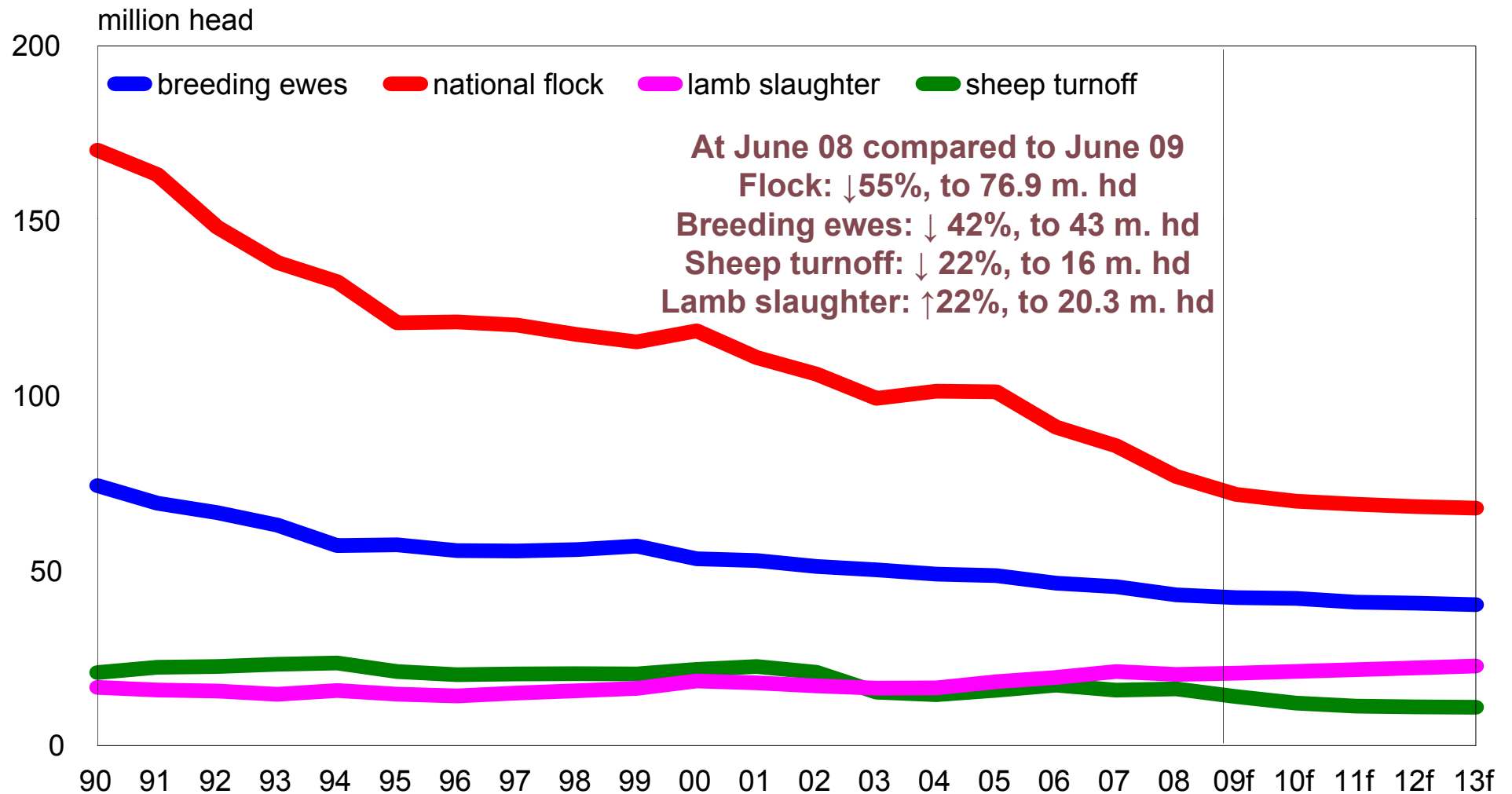


# A sustainable industry?



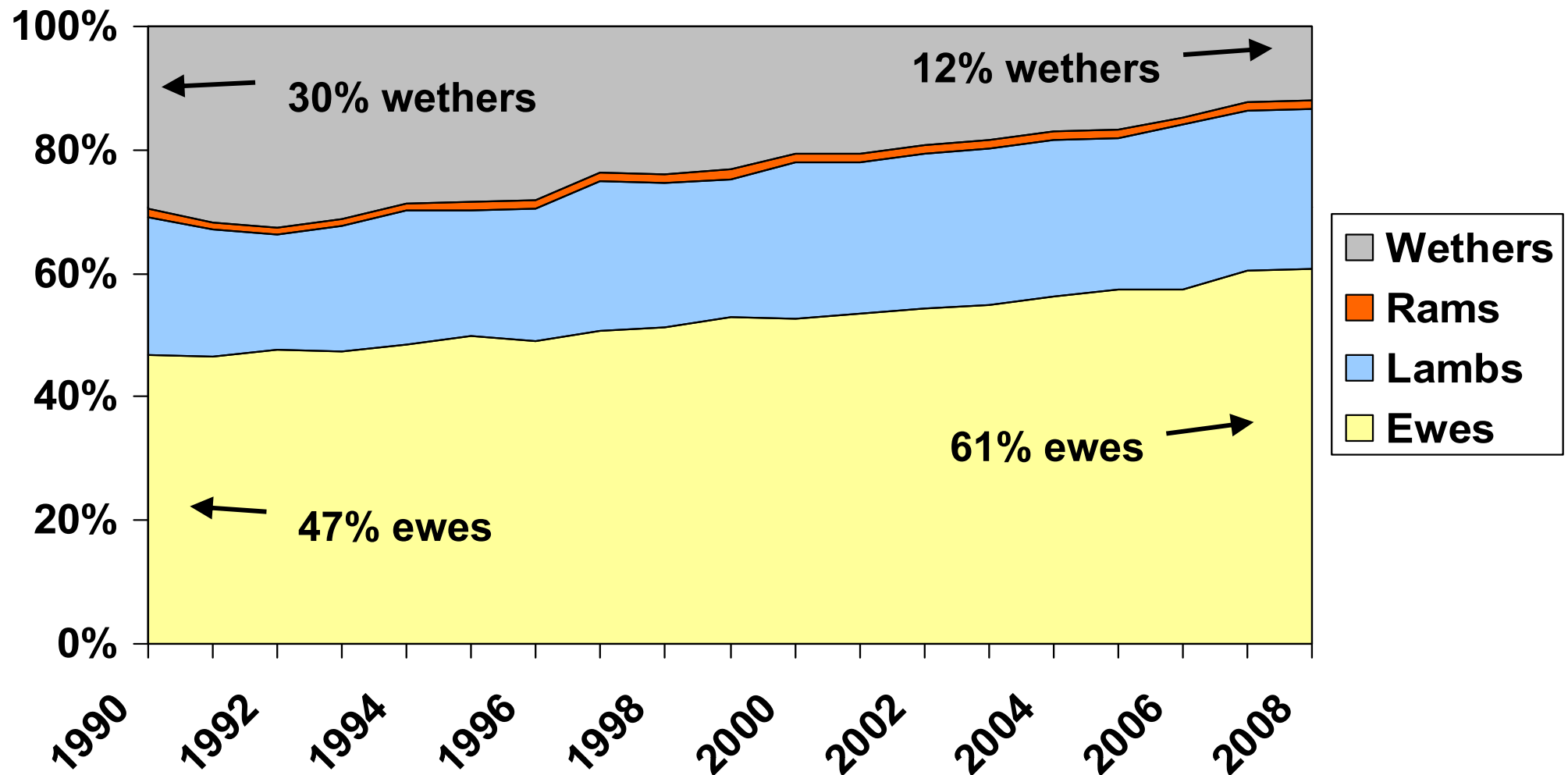
Source: ABARE Australian Commodity Statistics 2007  
Principal Agricultural Commodities, Australia (Preliminary) 2008-09 (cat no. 7111.0)

# National and breeding ewe flock decline

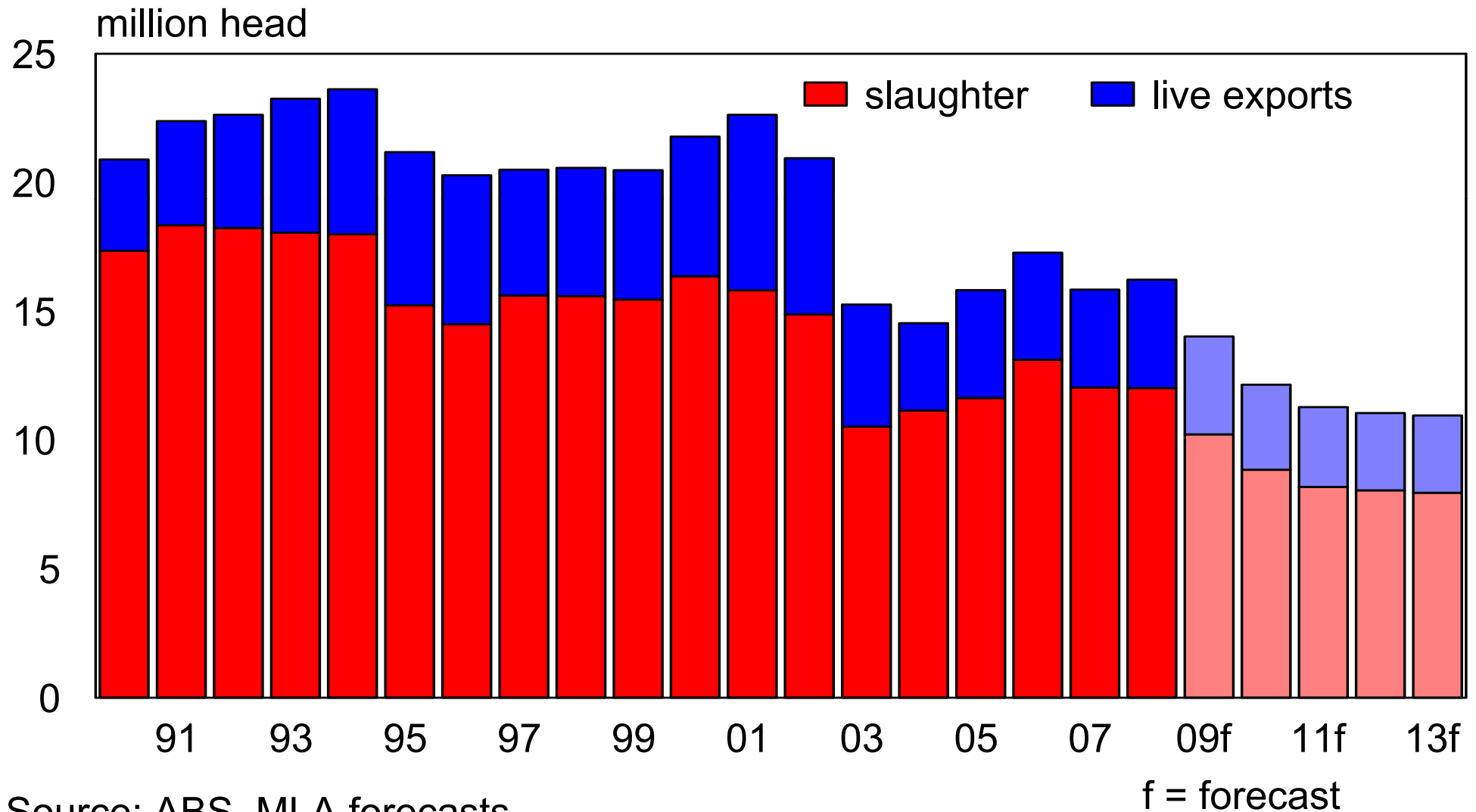


Source: ABS, MLA forecasts

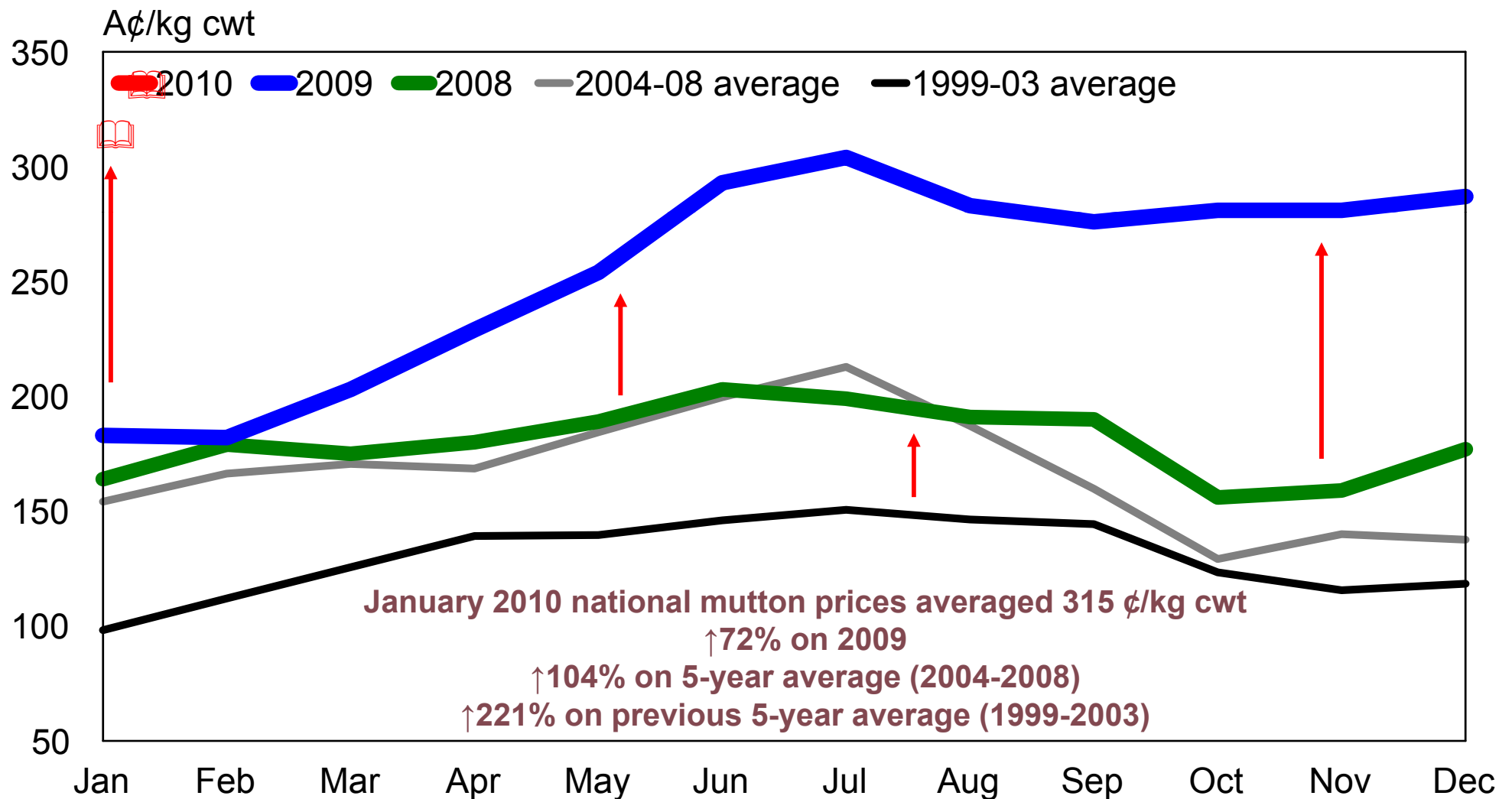
# Ewe & lamb proportion of the flock rising



## Turnoff- sheep slaughter and live exports



# National average sheep saleyard prices



Source: NLRS

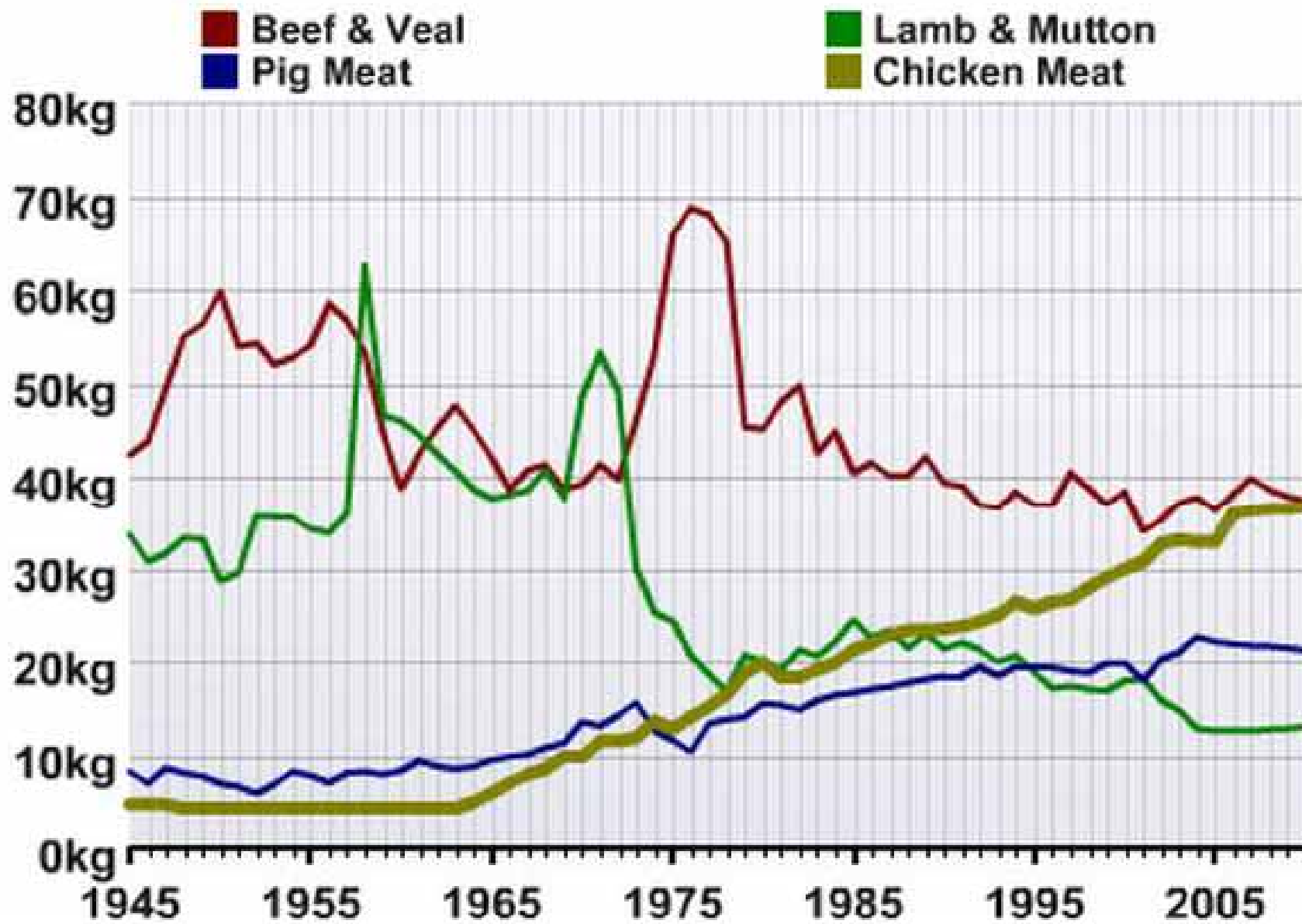
# How lamb has changed

- ✓ Lamb industry 1989
  - Carcase price \$1.50 per kg
  - Average carcase weight 17.75 kg
  - 15% exported

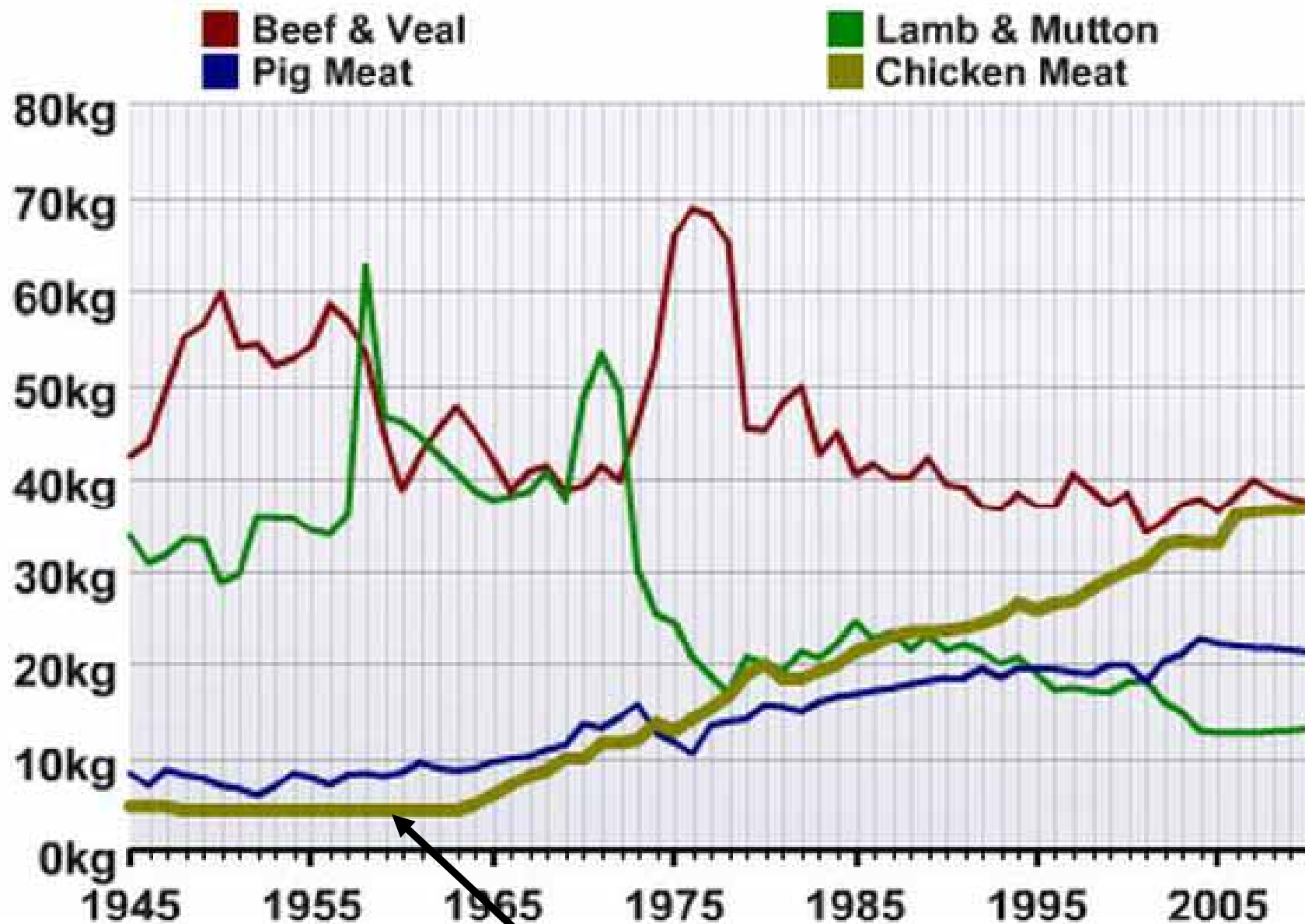
# Pressure leads to change...

- Climatic variations
  - Welfare friendly systems
  - Increased demand on resources
  - Labour – changing workforce
- 
- But what will the changes look like and how long will it take?

# Consumption over past 60 Years

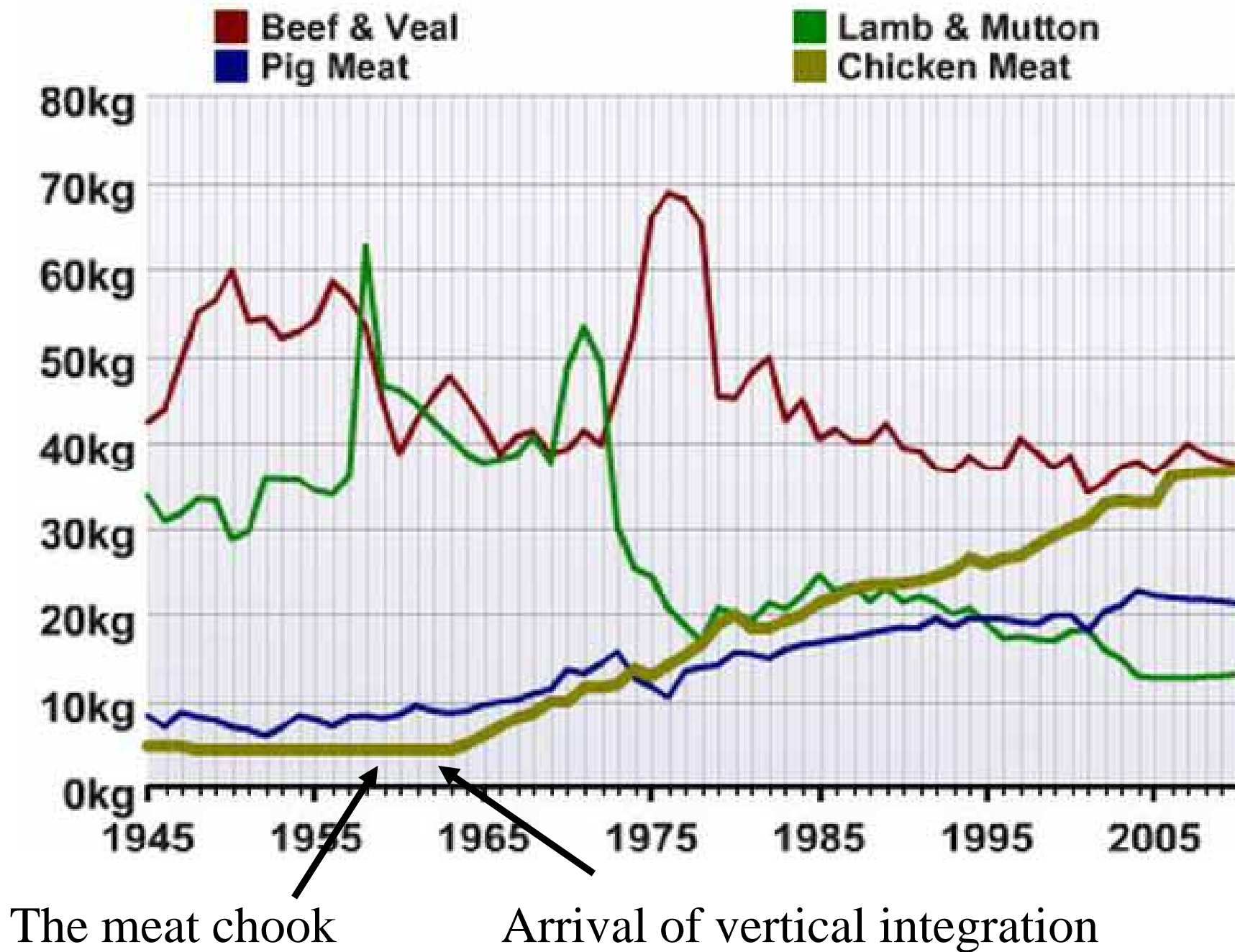


# Consumption over past 60 Years



First scientifically bred meat chicken released

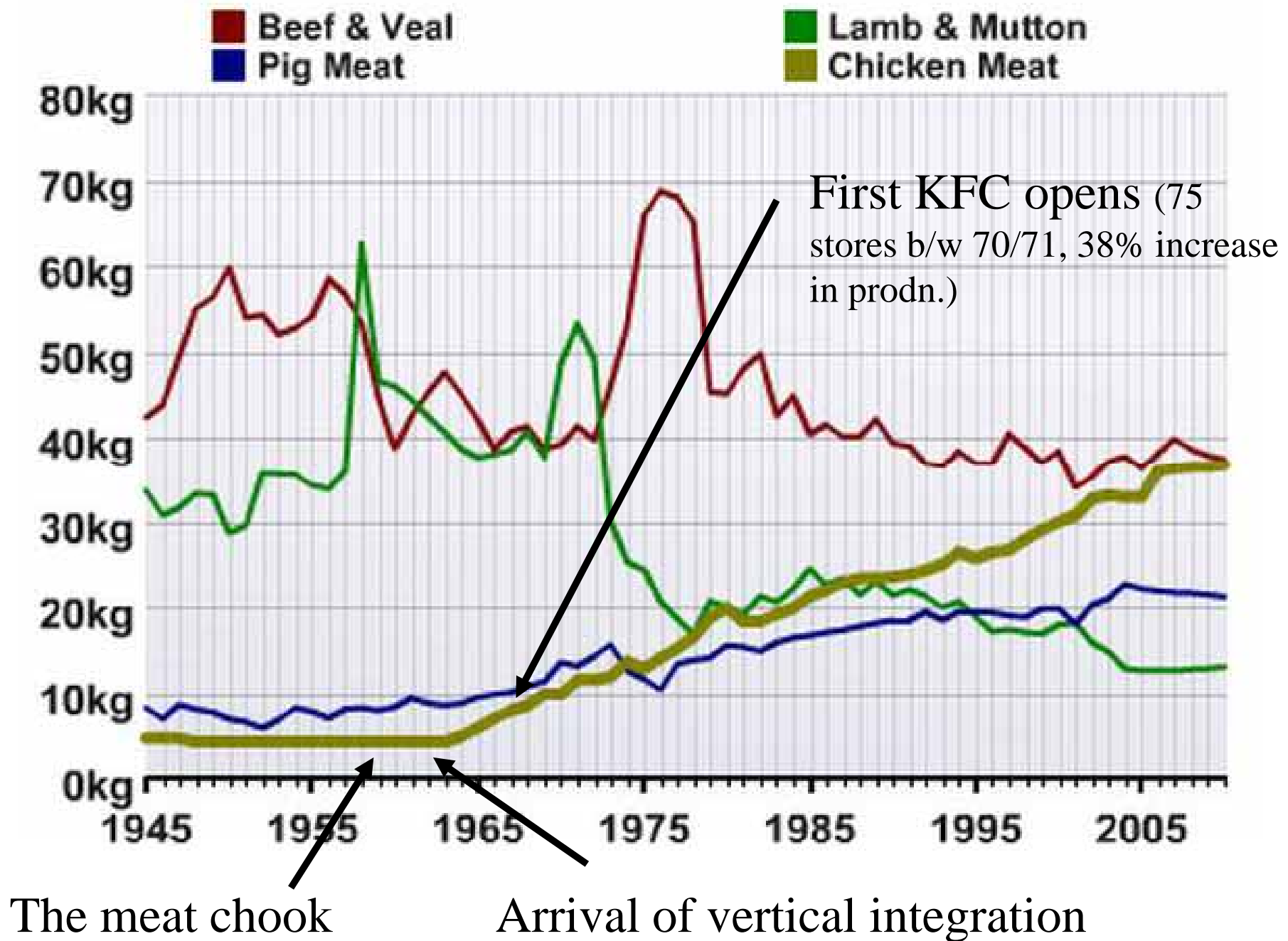
# Consumption over past 60 Years



The meat chook

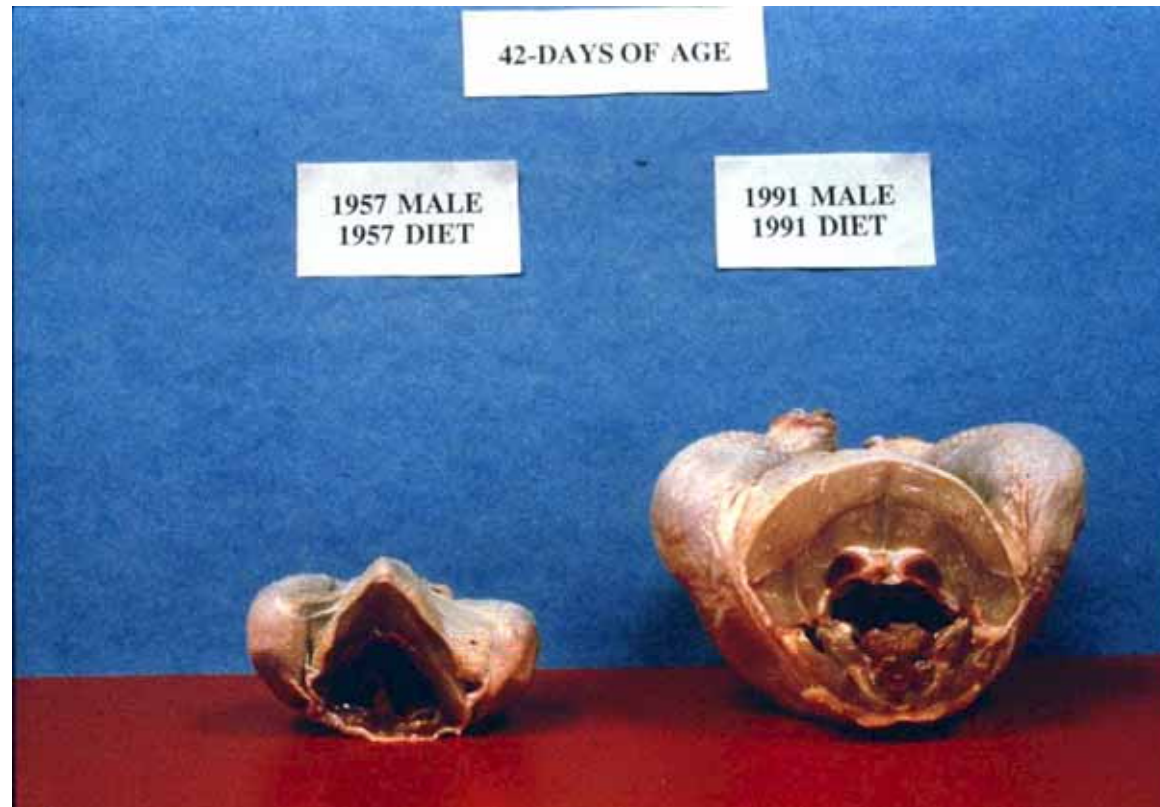
Arrival of vertical integration

# Consumption over past 60 Years



# Some supply chain successes

- The tuna industry.
  - 1989/1999 gross value of production \$1.8 million
  - 1999/2000 exports alone worth \$200 million.
  - All achieved with basically the same raw product.
- The poultry industry.



# What efficiency looks like

High performance

Breeding (B1, cycle, conceive, lamb and wean)

Growth and meat yield

But also low input

Physical and non physical

Nutritional requirements, growth and maintenance

Labour ie time – drenching, crutching, flies, chemical

- Feeding the right lambs at the right time
- Running the right ewes in the right place with the right management – life time ewe management.

# Monitoring lamb efficiency



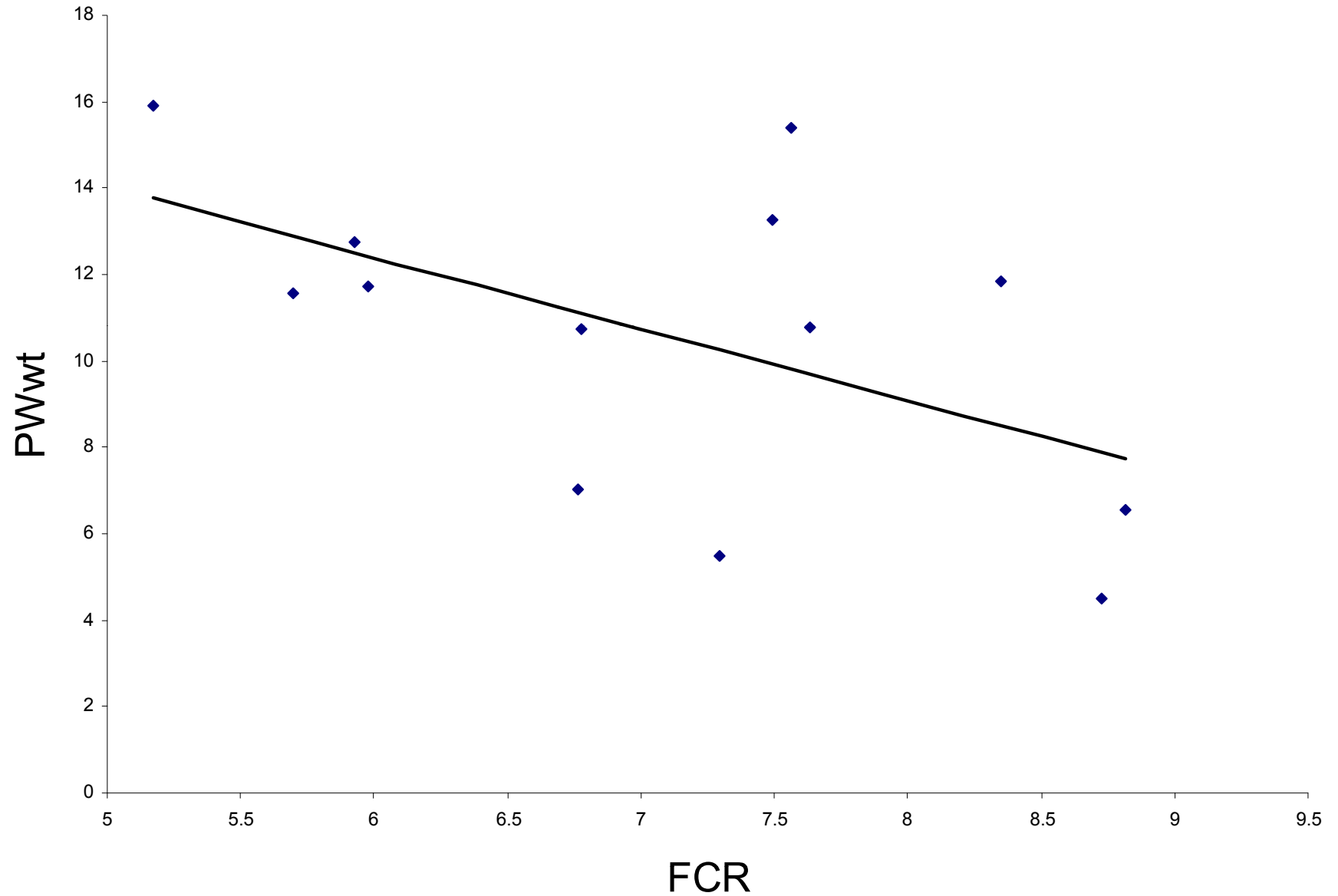
# Group housed lamb efficiency



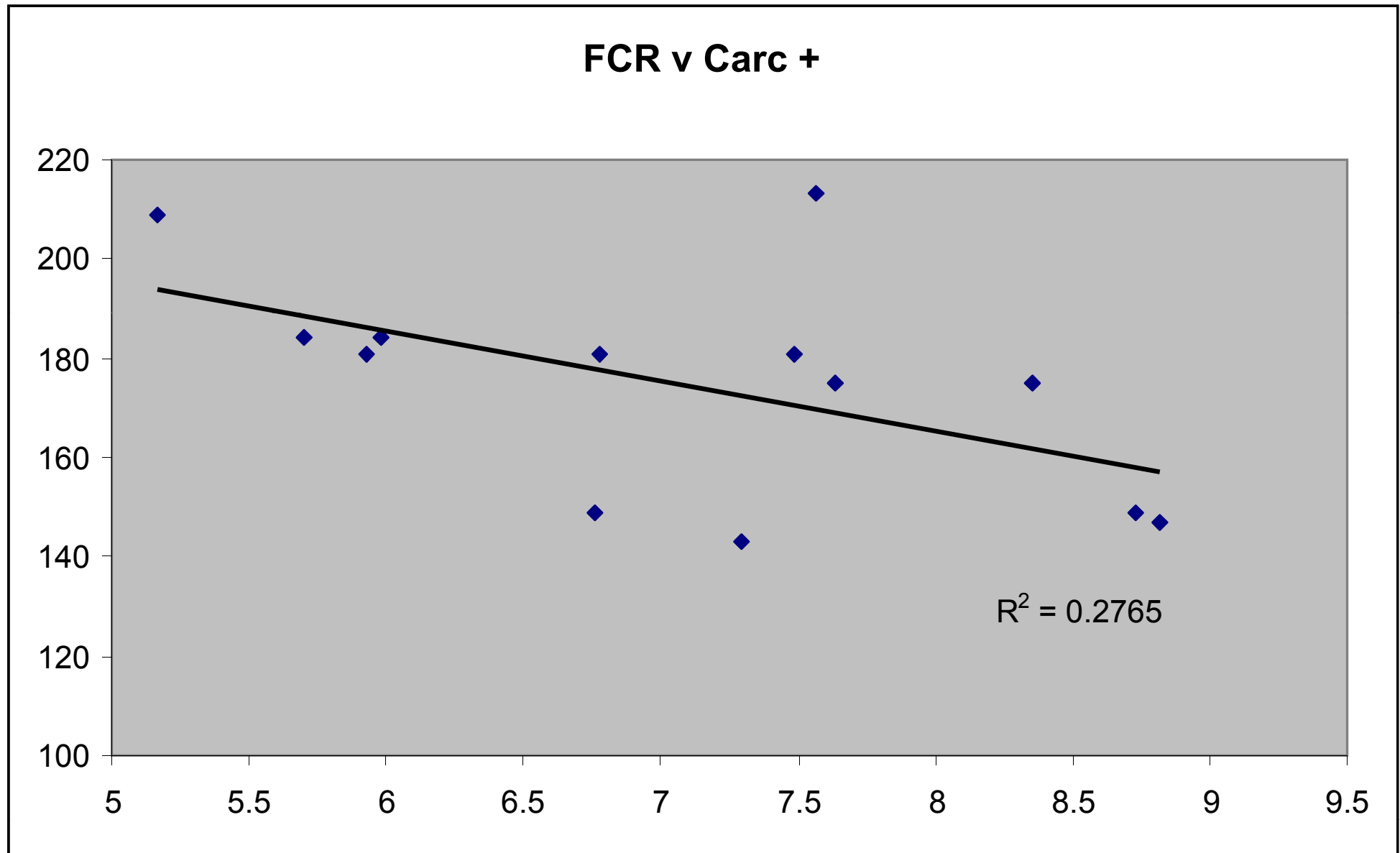
# Potential lamb performance

- Most efficient lamb put on 1kg live weight for every 2.5 kg of feed consumed.
  - Cost to finish was ~ \$10.00
- Least efficient lamb ate 14kg of feed, for every 1kg of live weight gain.
  - Cost to finish was ~ \$65.00 (in feed costs alone)
- Variation in sire groups for FCR ranged from 3.9:1 to 10:1

# The right lambs – have growth

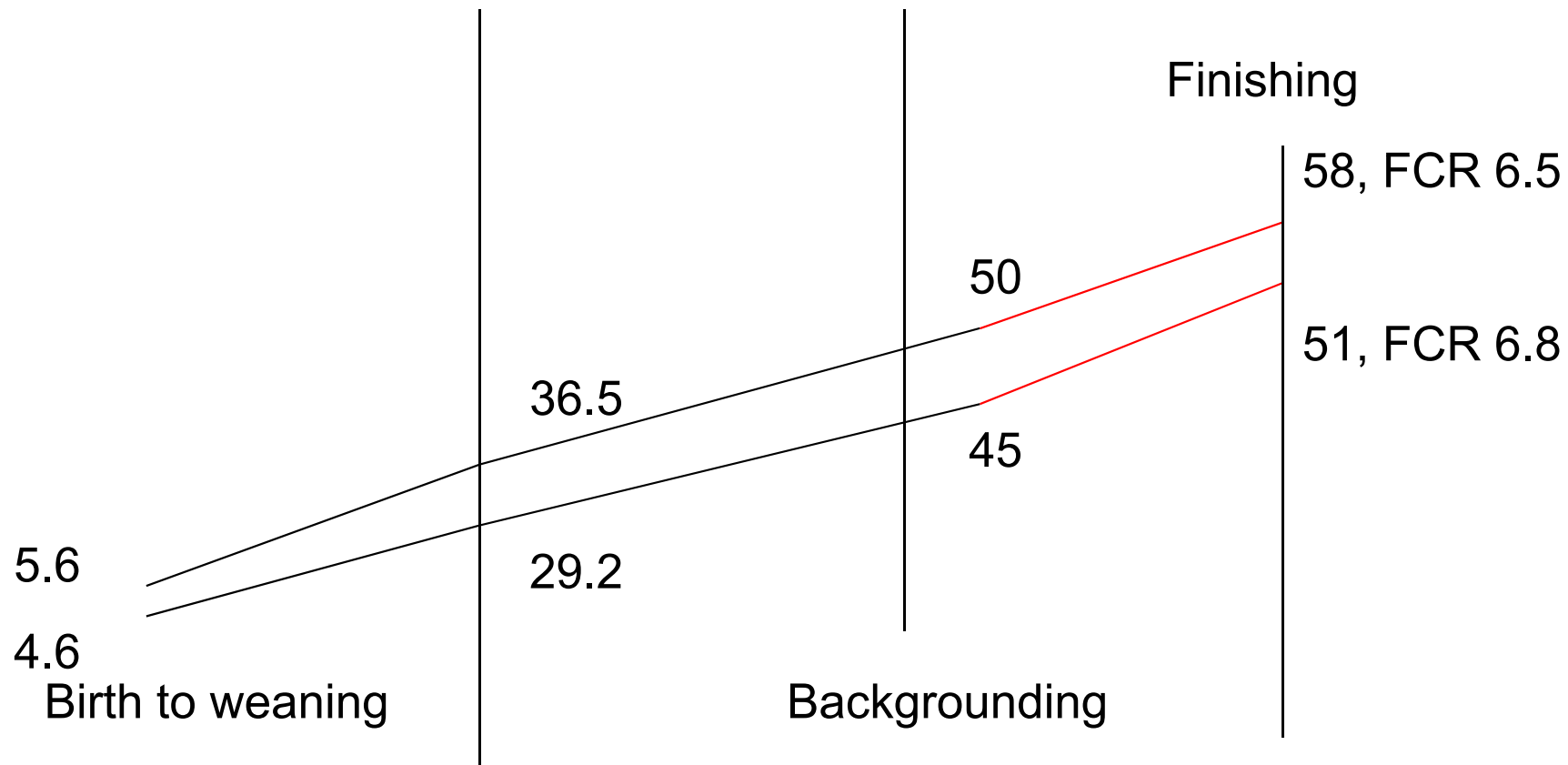


# The right lambs – muscle and fat to

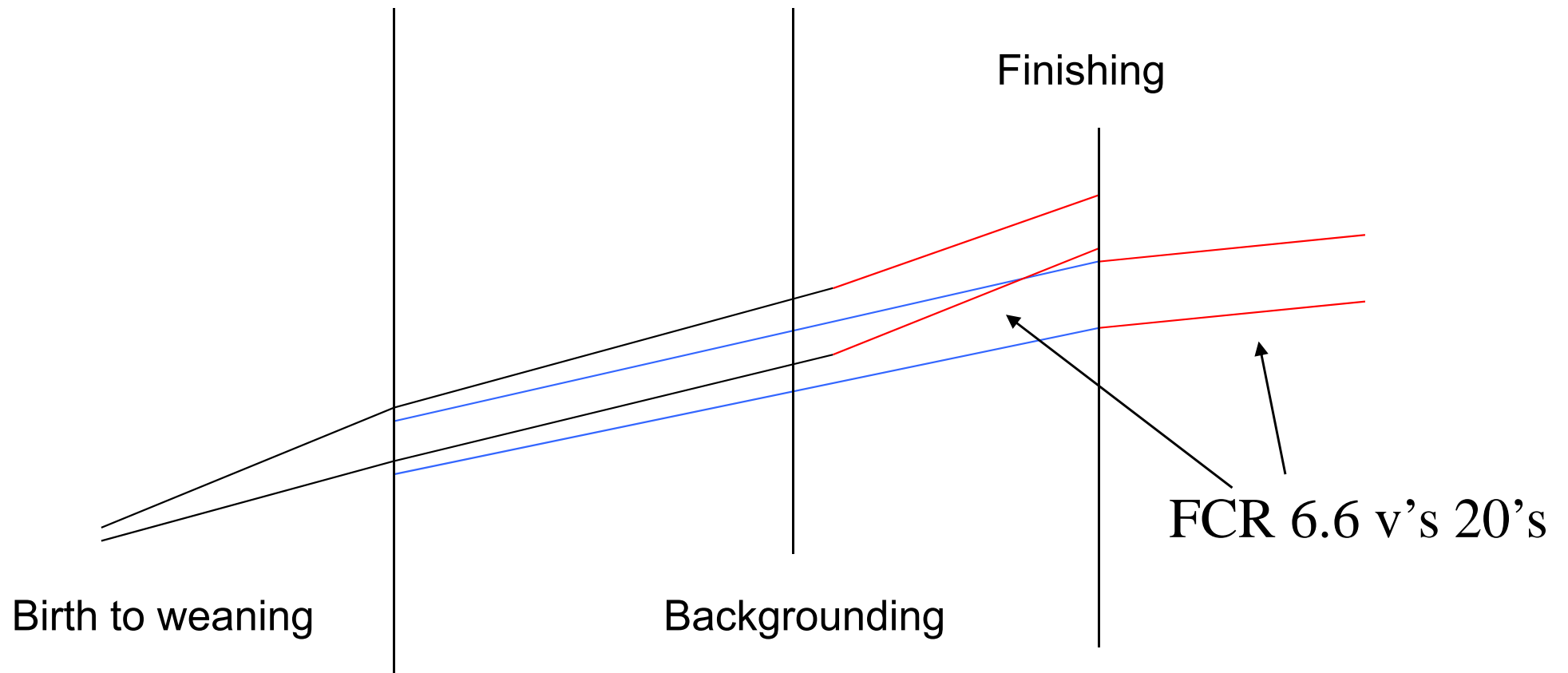


# The right lamb at the right place

## Impact of a pre weaning restriction



# Right lambs, WRONG place



# Preweaning nutrition – why so important?

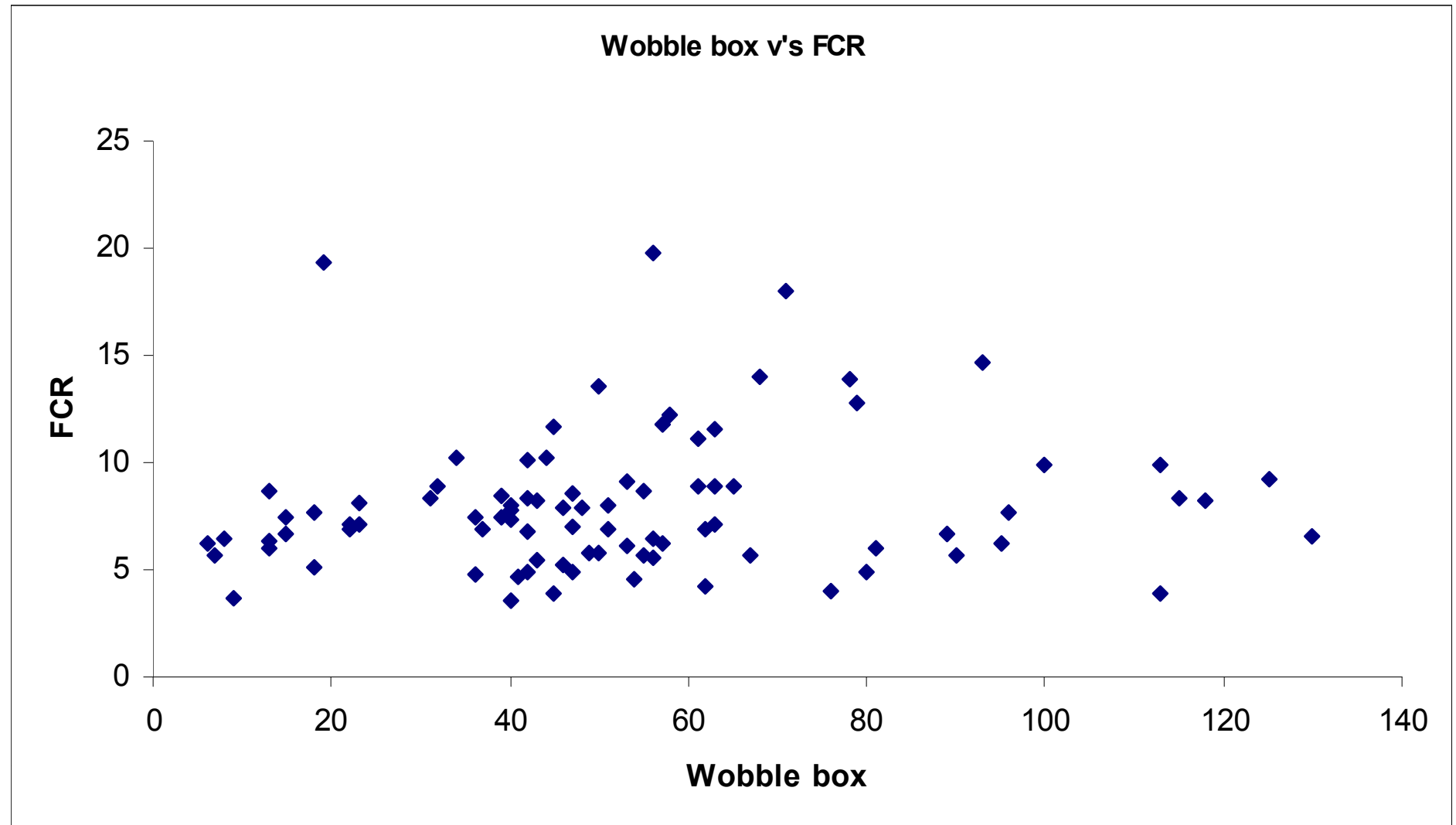
- Growth rates of high performance lambs is suppressed by poor nutrition – ie. nutrition impacts on LWG per unit growth ASBV.
- Expression of genetic potential for growth in response to nutrition is **greatest** pre weaning (Hegarty, 2006)
- Need for pre weaning growth to optimise the investment in high performance genes
  - Hence need for ewes to be 'right to go'

# Management of pre weaning nutrition

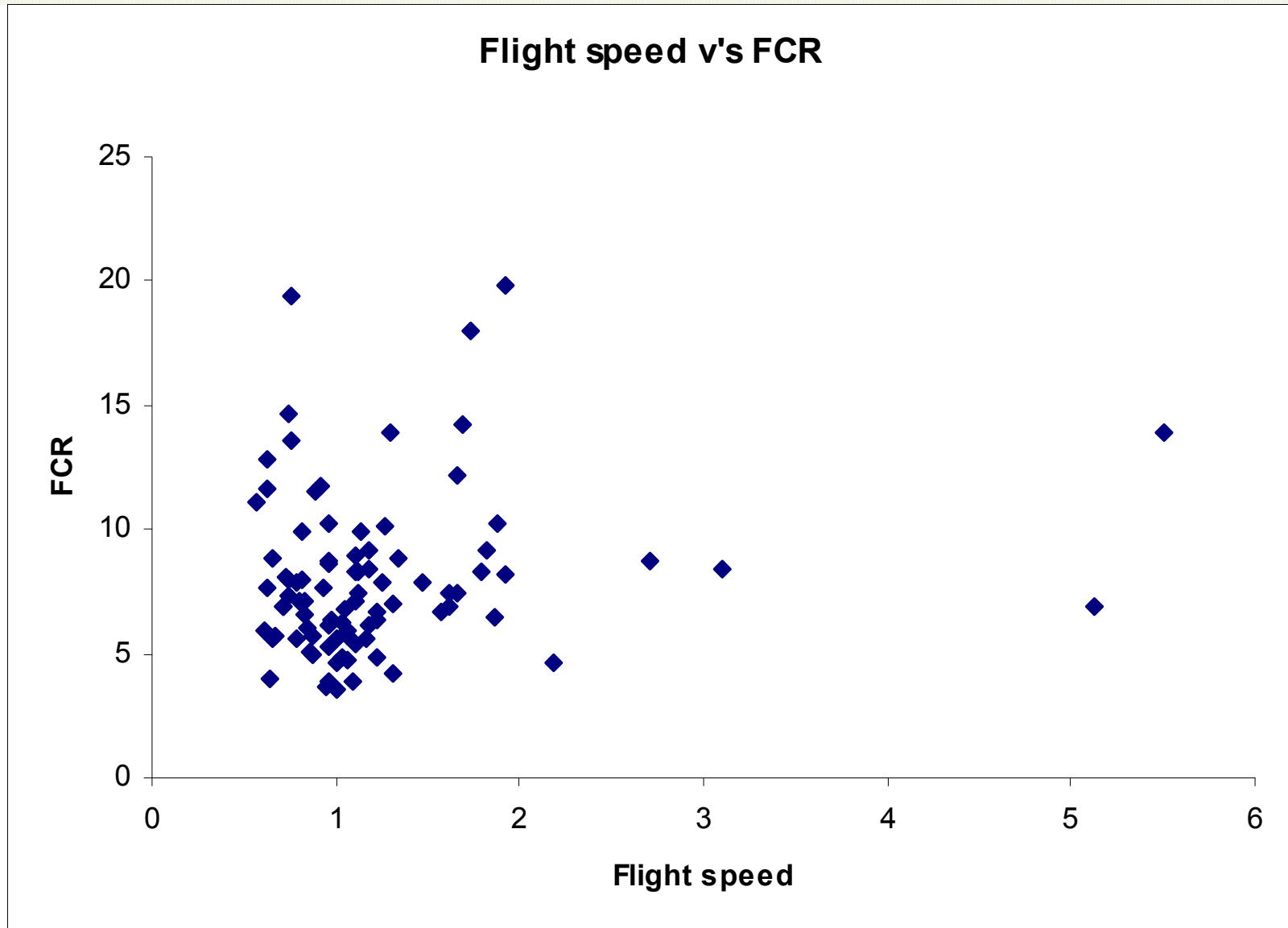
- Mature ewes on low nutrition lost 4 times more live weight than ewes on high nutrition.
- Maiden ewes, low nutrition group lost 8 times more LW than the high nutrition group.

(Hegarty, NSW)

# The right lamb - temperament



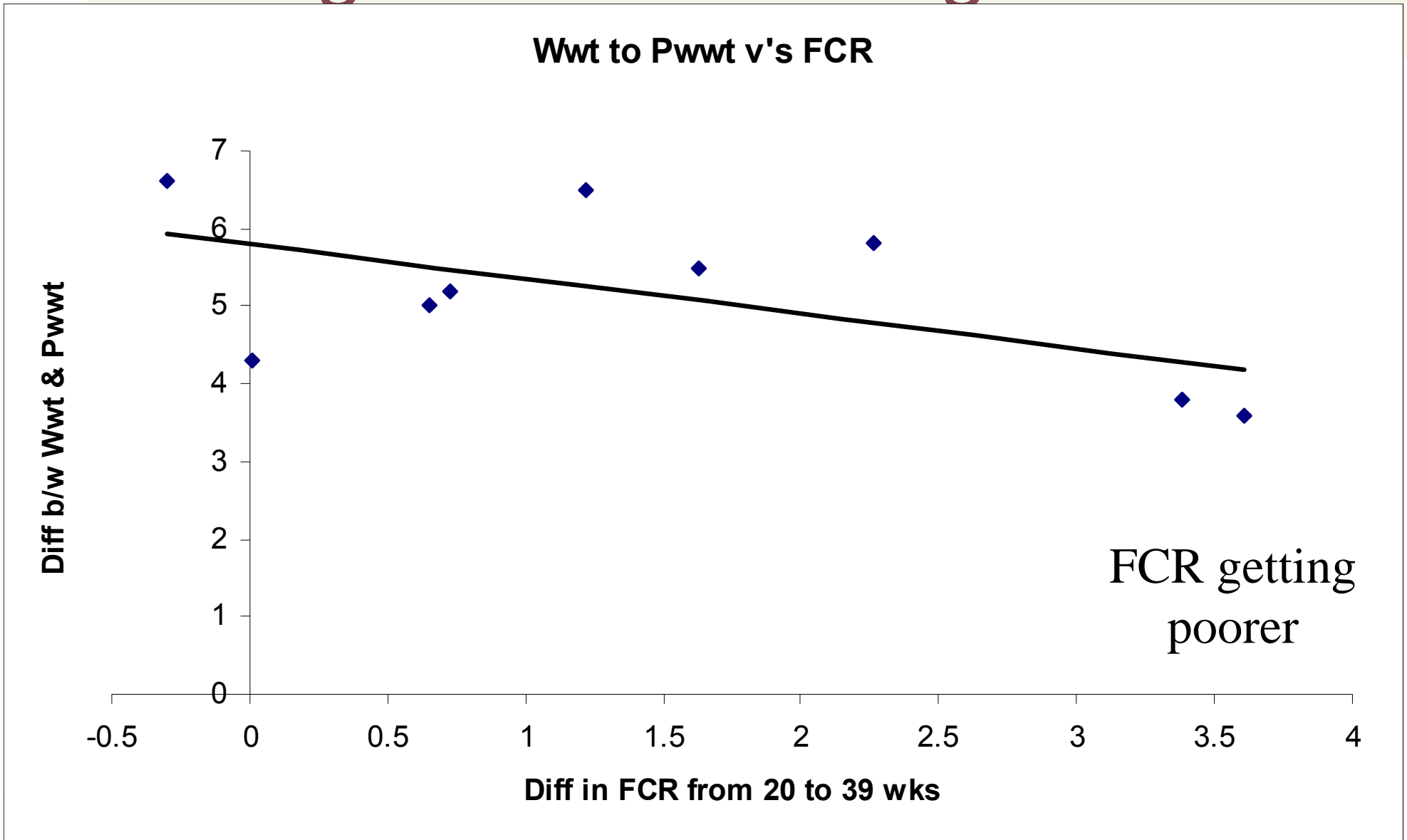
# The right lamb - temperament



# The right lamb at the right time

	20 wks (7 wks b.grnd)	29 wks (16 wks b.grnd)	39 wks (26 wks b.grnd)
< 28kg	5.4	4.9	19.4
32-35kg	6.0	4.5	20.7
> 39kg	6.1	4.3	19.1

# The right lamb at the right time



# Right place, also means right feed

- **Different chop length greatly impacts on lamb performance down the track.**
- Intake of precision chopped silage was 31-49 % greater than flail chopped silages (32cm long chop down to 7 cm precision chop).
- Increased intake, results in increased weight gains.
- Starting at 37.2 and 37.5 kg respectively, long chopped lambs lost 0.3 kg while precision chopped lambs gained 11.4 kg.

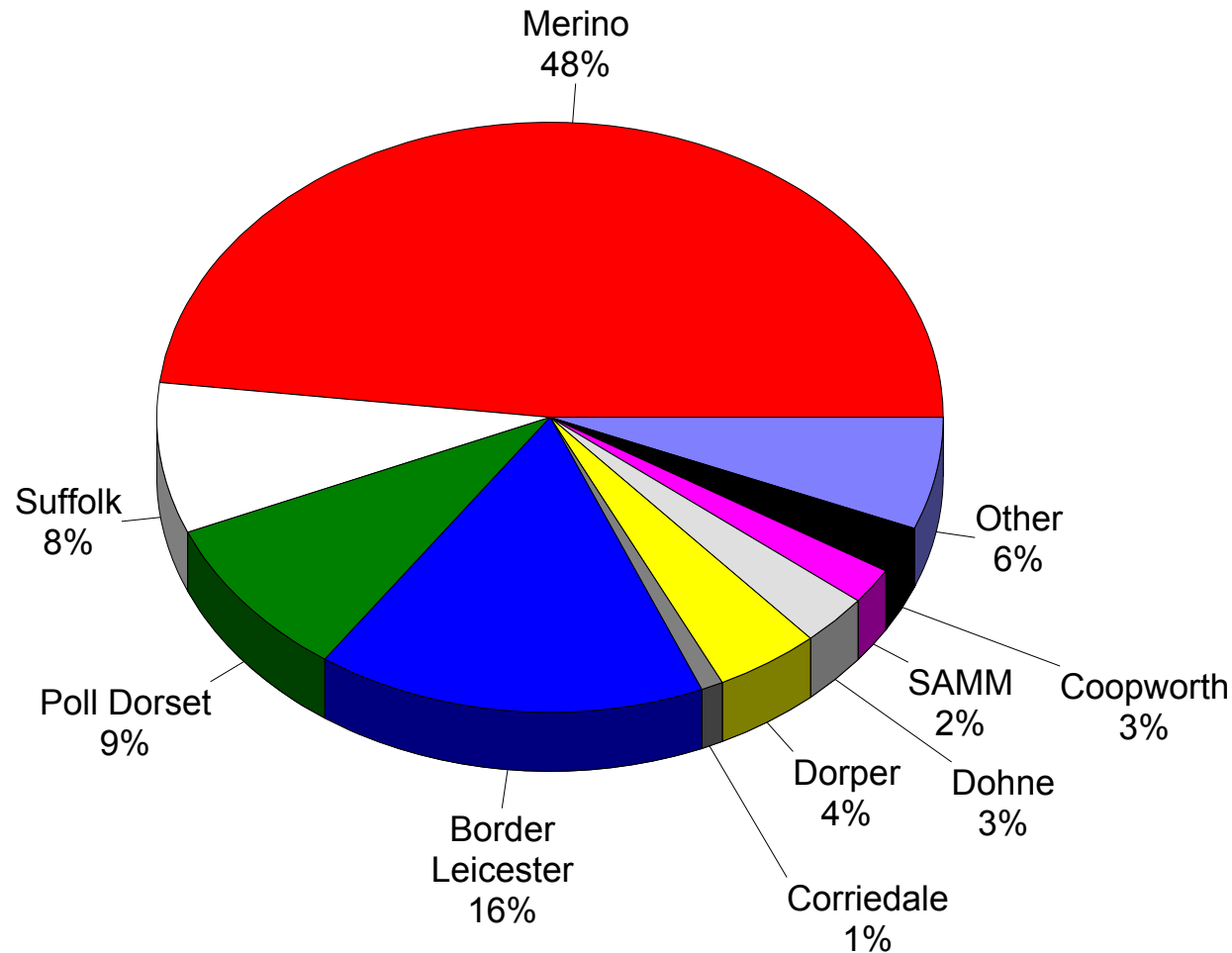
# Lambs, what is *right*?

- Good growth and carcass + values
- 'Mid' aged lambs have been most efficient during finishing (~ 28 wks)
- Lambs light at weaning aren't 'wrong'
  - - likely to be always lighter (longer on feed)
  - - be wary of feeding as older, heavier lambs

# Why the right ewes matter

	Broiler	Pig	Cattle	Sheep
Weight of dam	3	180	450	75
Weight of carcass	1.5	45	250	18
Progeny/year	240	22	1	1.5
Weight of carcass per yr/dam wt	120	5.5	0.55	0.36
<b>Where the energy goes</b>				
<b>To Dam</b>	<b>4</b>	<b>16</b>	<b>50</b>	<b>70</b>
<b>To Progeny</b>	<b>96</b>	<b>84</b>	<b>50</b>	<b>30</b>

# Sires used to generate maternal ewe flock October 2008- White Suffolk are ewe contributors



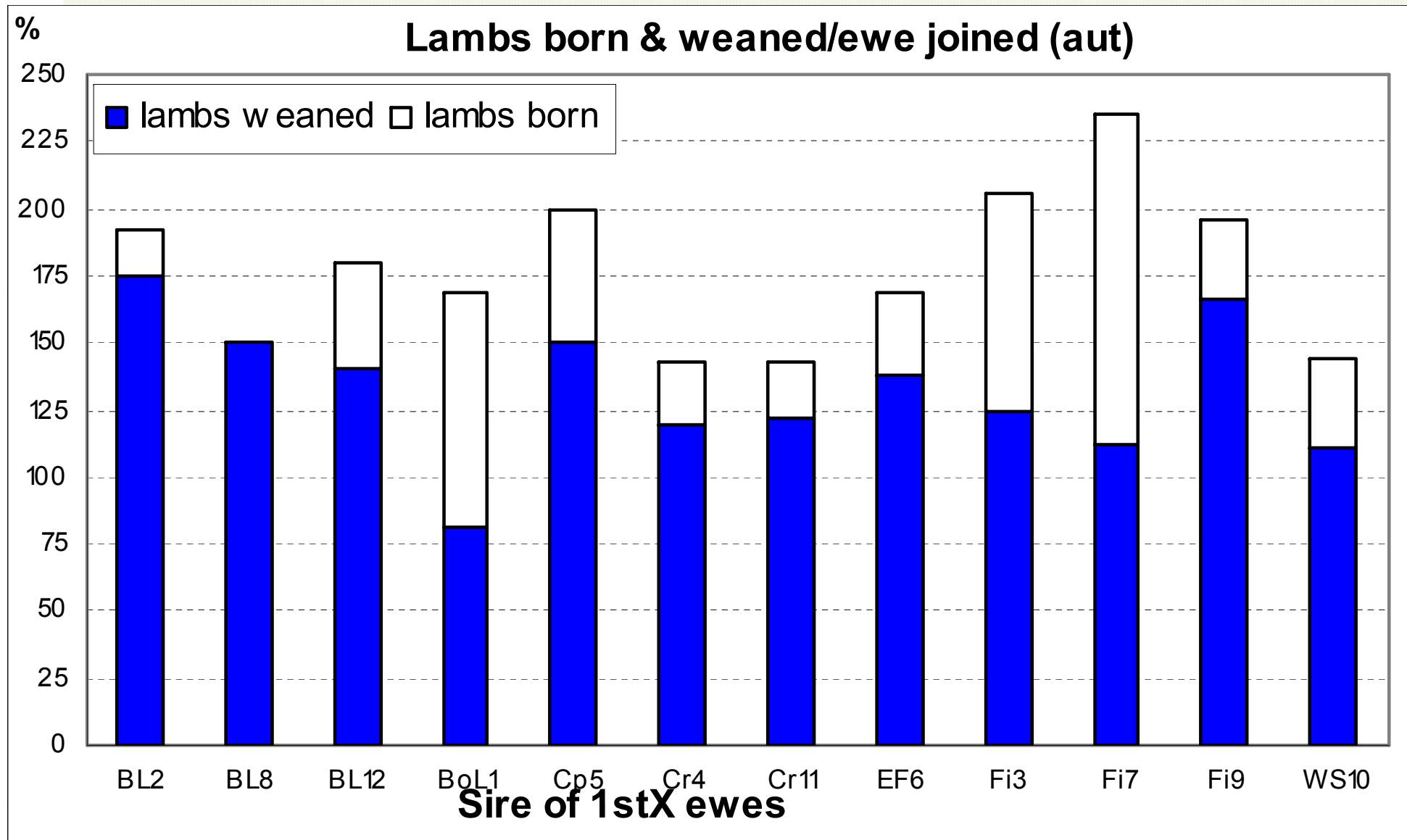
Source: MLA sheep and lamb producer survey October 2008

\*other includes Finn, Wiltipoll, Damara, Texel and composites  
weighted by the number of breeding ewes on hand

# The right ewes – highly reproductive

- “Hogget lambing used to be a bonus, now its expected with people looking for twins” *NZ research report*
- *Litter size, ewe longevity, maternal lamb survival, and maternal weaning weight as being important drivers of ewe efficiency (Sise et al 2009)*
- *Triplet survival !!!*

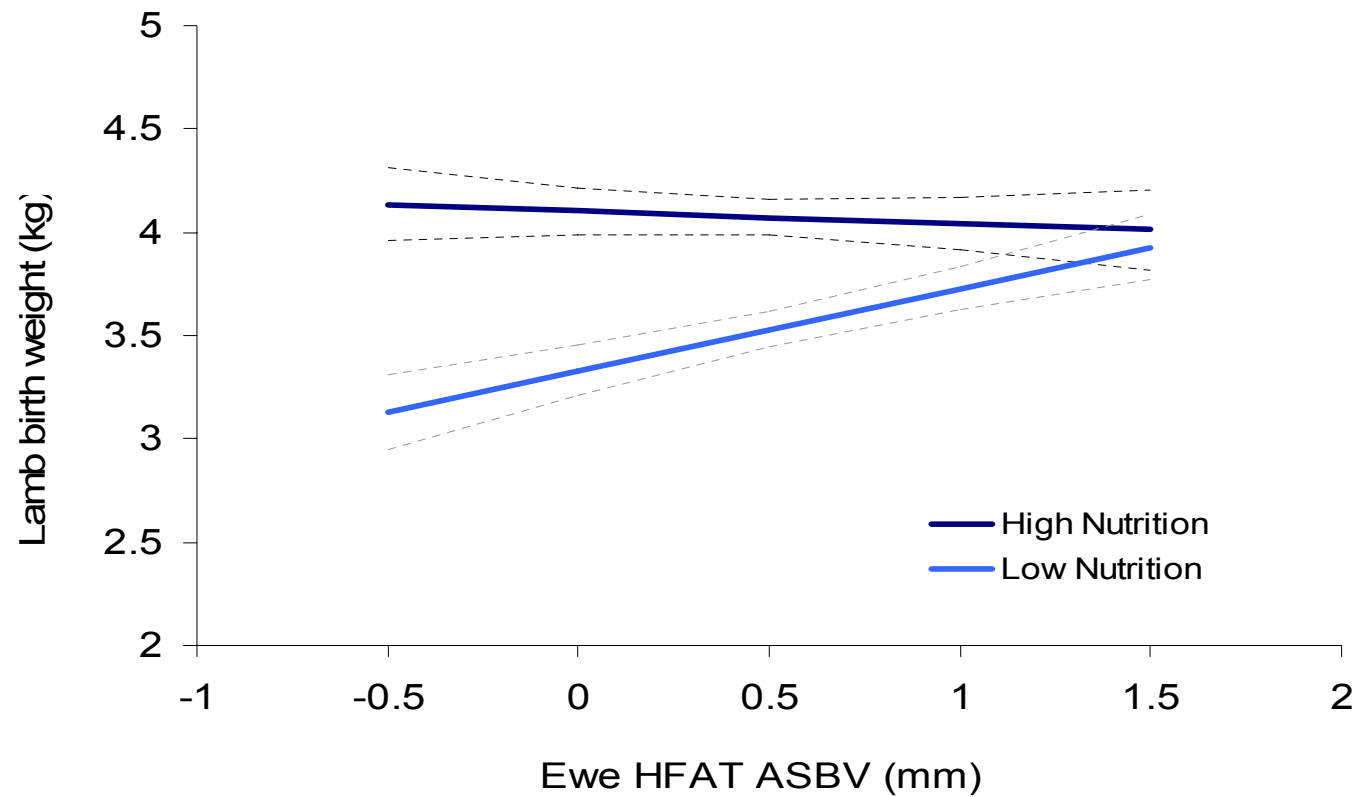
# Right ewes – get lambs to weaning



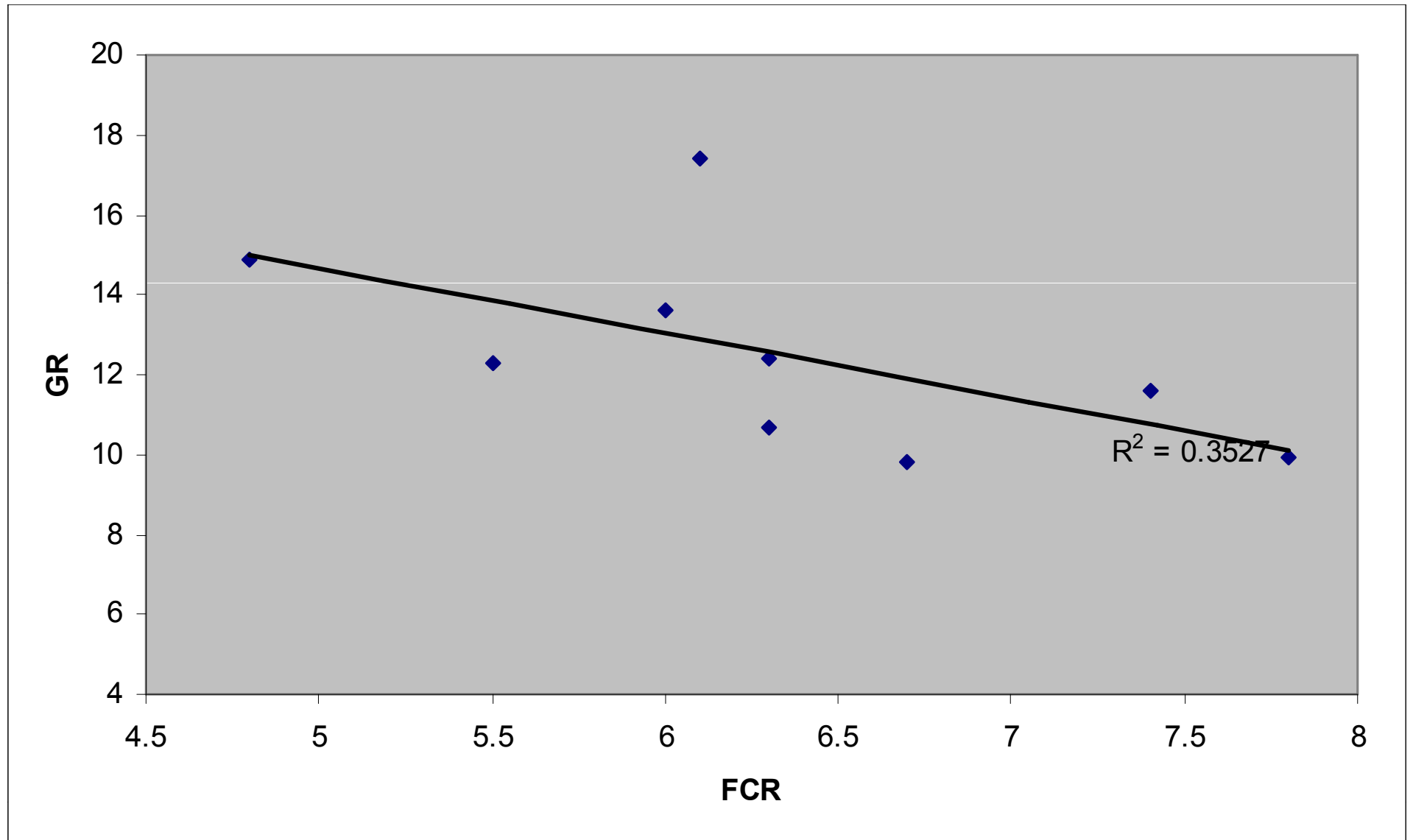
# The right ewe – cheap to run

- MCPT trial work
- The project has shown that the crossbred ewe progeny of some maternal sires consume up to 15% less feed for maintenance than similar weight ewes by other sires. *Neal Fogarty*

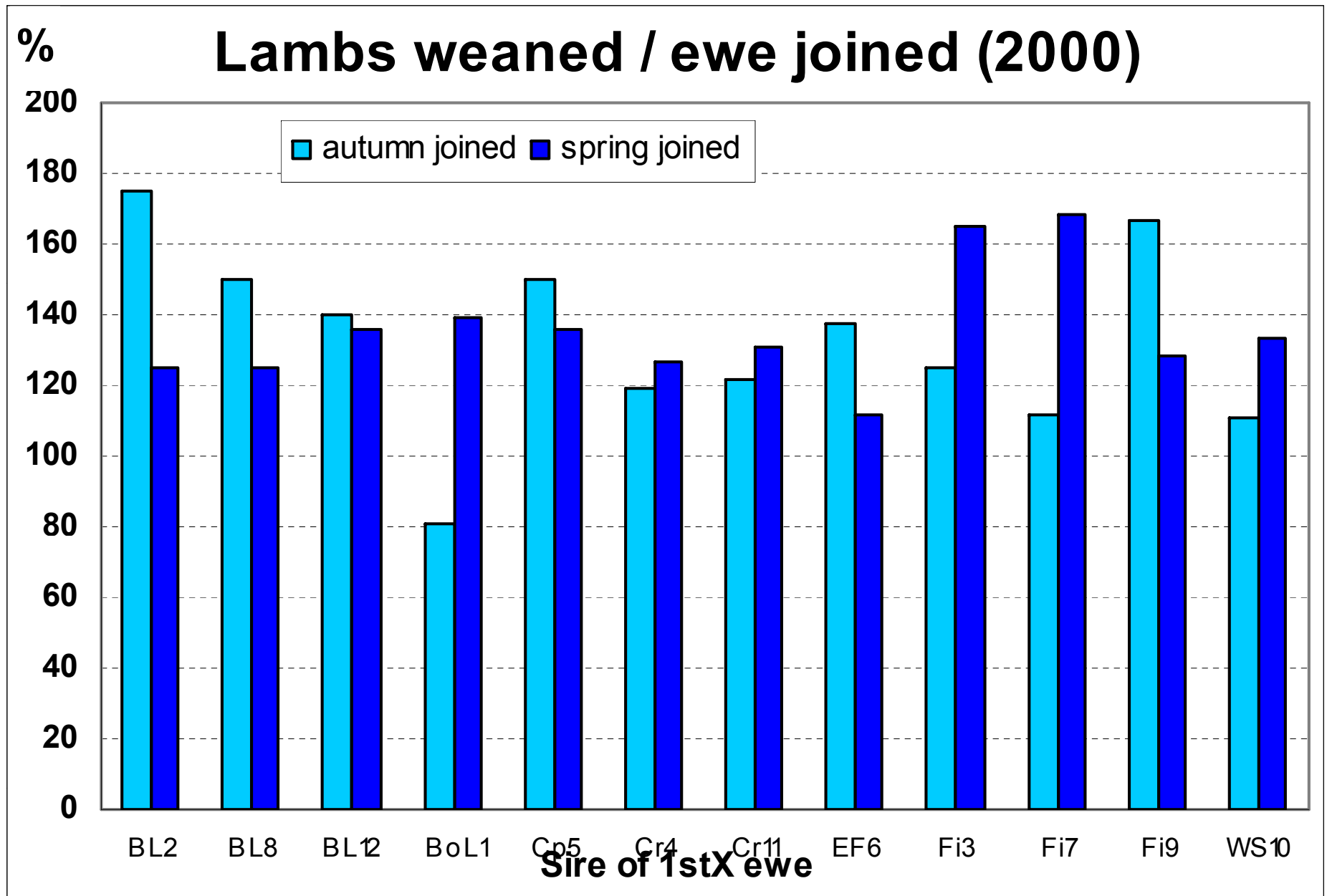
# The right ewe, in the right place..(Mark Ferguson, WA)



# Fat and efficiency



# Right ewe in the right place



# Keeping ewes right

- Dry sheep tend to take lower priority, but don't miss out on next years lamb crop.
- Nutritional restrictions to a lamb during pregnancy **will never** be compensated for. Guaranteed poor performers.
  - Cows restricted during pregnancy; -10 kg birth, -25 kg wean and -55 kg at slaughter
  - Pre-weaning growth check also never fully compensated for (-70 kg & -40 kg).
- Pays to monitor dry ewes, fat and thin them 8 wks before joining.

LW @ joining (kg)	45	50	55	60
% lambs born	118	126	134	142

# But what is still the same?

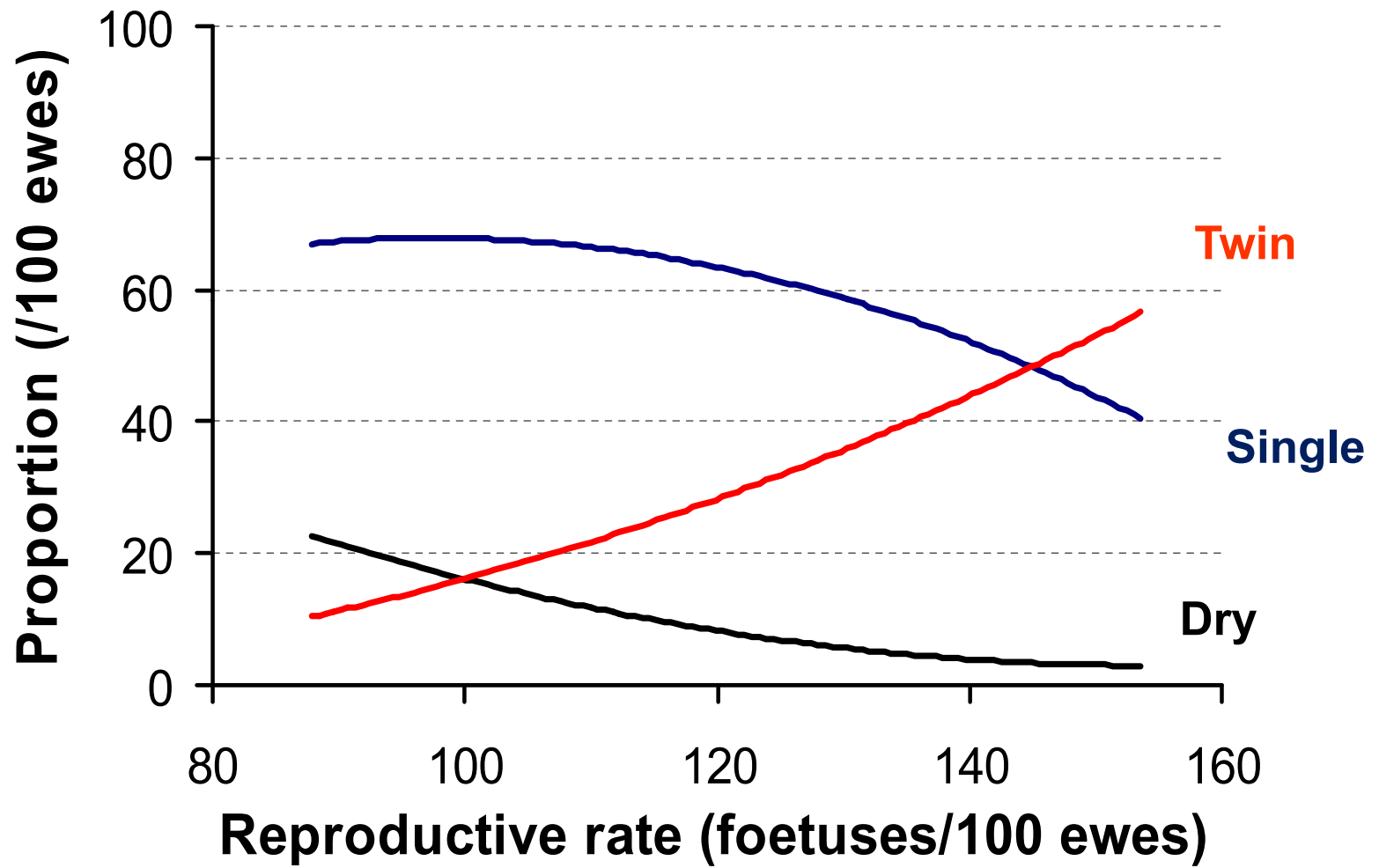
## Trends in Average Marking Rate

(ABARE Survey data for all sheep regions of Aus)

Enterprise sector	Average marking rate (1990-1999)	Average marking rate (2000-2005)
Prime lamb specialists	84	85
Sheep specialists	73	71
Mixed sheep enterprises	75	74
Sheep Industry Total	77	77

# **Turning Reproductive Potential into Reality**

# Reproductive rate and ewe pregnancy status



# Impact of lamb survival rates on lambs marked for ewes SIL 130%

Survival rate	Ewes joined	Scanned dry	Scanned single	Marked single	Scanned twin	Marked twin	Total marked lambs	Overall lamb survival
<u>Common rate</u> 80% single 40% twin	100	5	60 ewes	48 lambs	35 ewes (70 lambs)	28 lambs	76	<b>58%</b>

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Survival rate	Ewes joined	Scanned dry	Scanned single	Marked single	Scanned twin	Marked twin	Total marked lambs	Overall lamb survival
<u>Target rate</u> 90% single 70% twin	100	5	60 ewes	54 lambs	35 ewes (70 lambs)	49 lambs	103	79%
<u>Common rate</u> 80% single 40% twin	100	5	60 ewes	48 lambs	35 ewes (70 lambs)	28 lambs	76	58%



# Impact of lamb survival rates on lambs marked for ewes SIL 160%

Survival rate	Ewes joined	Scanned dry	Scanned single	Marked single	Scanned twin	Marked twin	Total marked lambs	Overall lamb survival
<u>Common rate</u> 85% single 65% twin	100	3	34 ewes	29 lambs	63 ewes (126 lambs)	82 lambs	111	69%

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Survival rate	Ewes joined	Scanned dry	Scanned single	Marked single	Scanned twin	Marked twin	Total marked lambs	Overall lamb survival
<u>Target rate</u> 95% single 85% twin	100	3	34 ewes	32 lambs	63 ewes (126 lambs)	107 lambs	139	87%
<u>Common rate</u> 85% single 65% twin	100	3	34 ewes	29 lambs	63 ewes (126 lambs)	82 lambs	111	69%



# Causes of lamb loss - surveys

**Fertility Service  
(1972 - 1974)**

**Lomond  
(2004)**

	%		%
<b>Starvation/ Mismothering</b>	<b>58.2</b>		<b>57</b>
<b>Difficult births</b>	<b>17.8</b>		<b>32.9</b>
Infection	4.4		6.3
Predation	7.8		2.5
Remainder	11.9		1.3

# Increase in profit from pregnancy scanning ewes and adopting optimum management of empty, single and twin bearing ewes

Cost of scanning (cents/ewe)	Profit Increase	
	\$/farm	\$/ewe
50	8820	1.77
70	7820	1.57
90	6810	1.37

# Reduction in profit from missing the target condition at lambing by 0.3 CS for single and twin bearing ewes

	Cost of missing CS target	
	\$/farm	\$/ewe
Singles	14100	4.00
Twins	11600	7.30

# Reduction in profit from missing the target condition at lambing by 0.3 CS for single and twin bearing ewes

Cost of scanning (cents/ewe)	Cost of missing CS target	
	\$/farm	\$/ewe
Singles	14100	4.00
Twins	11600	7.30
Twins (Lambing CS not above joining CS)	2750	2.00

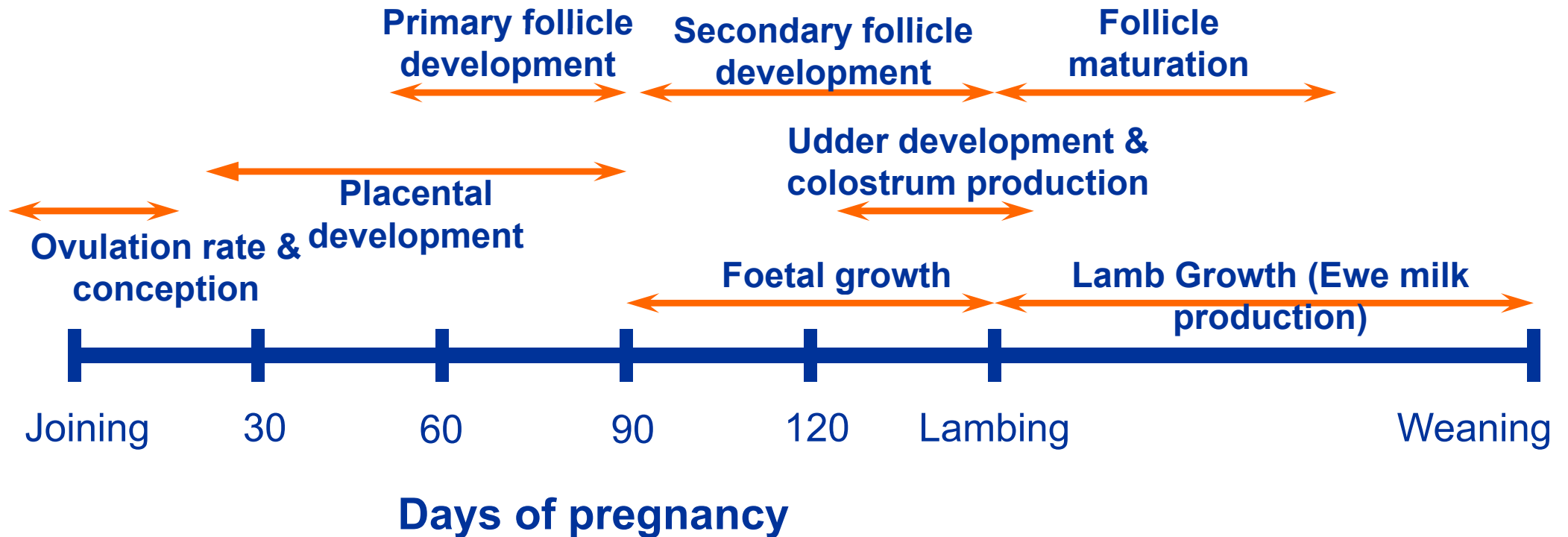
# Reduction in profit (\$/ewe) if ewes are misidentified and the increase in the level of errors that would offset a 10c/hd saving

	Cost/ewe misidentified	Level to offset 10c/hd
Single as dry	8.25	1.2%
Twin as single	2.80	3.6%
Twin as dry	13.50	0.7%

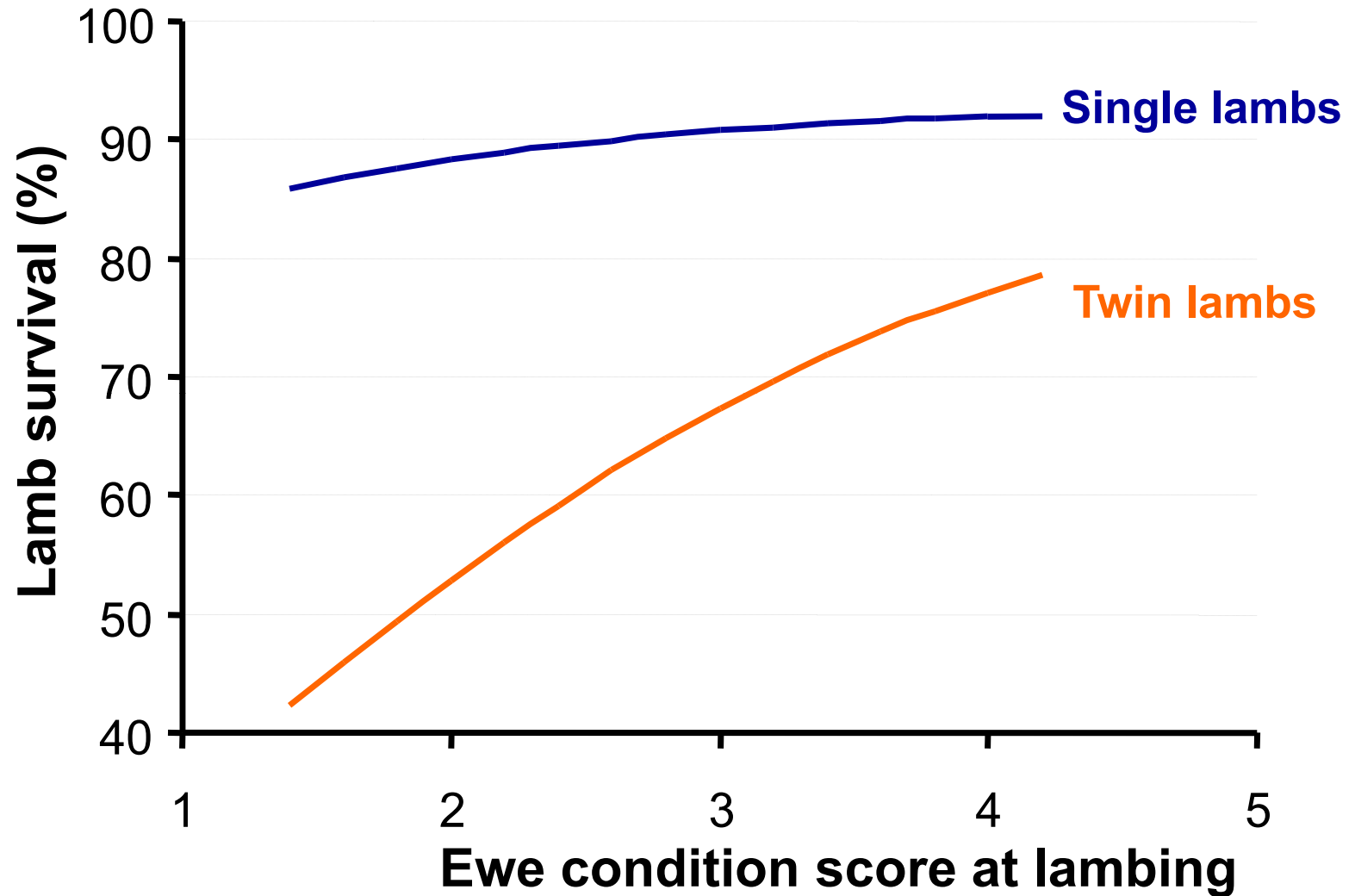
# Benefits of improved feed allocation following to scanning

- Improved lamb survival
- Reduced ewe mortality
- More even lines of lambs
- Higher lambing % in subsequent years
  
- Understanding your flocks performance
  - response in reproductive rate to joining CS
  - current lamb survival rates

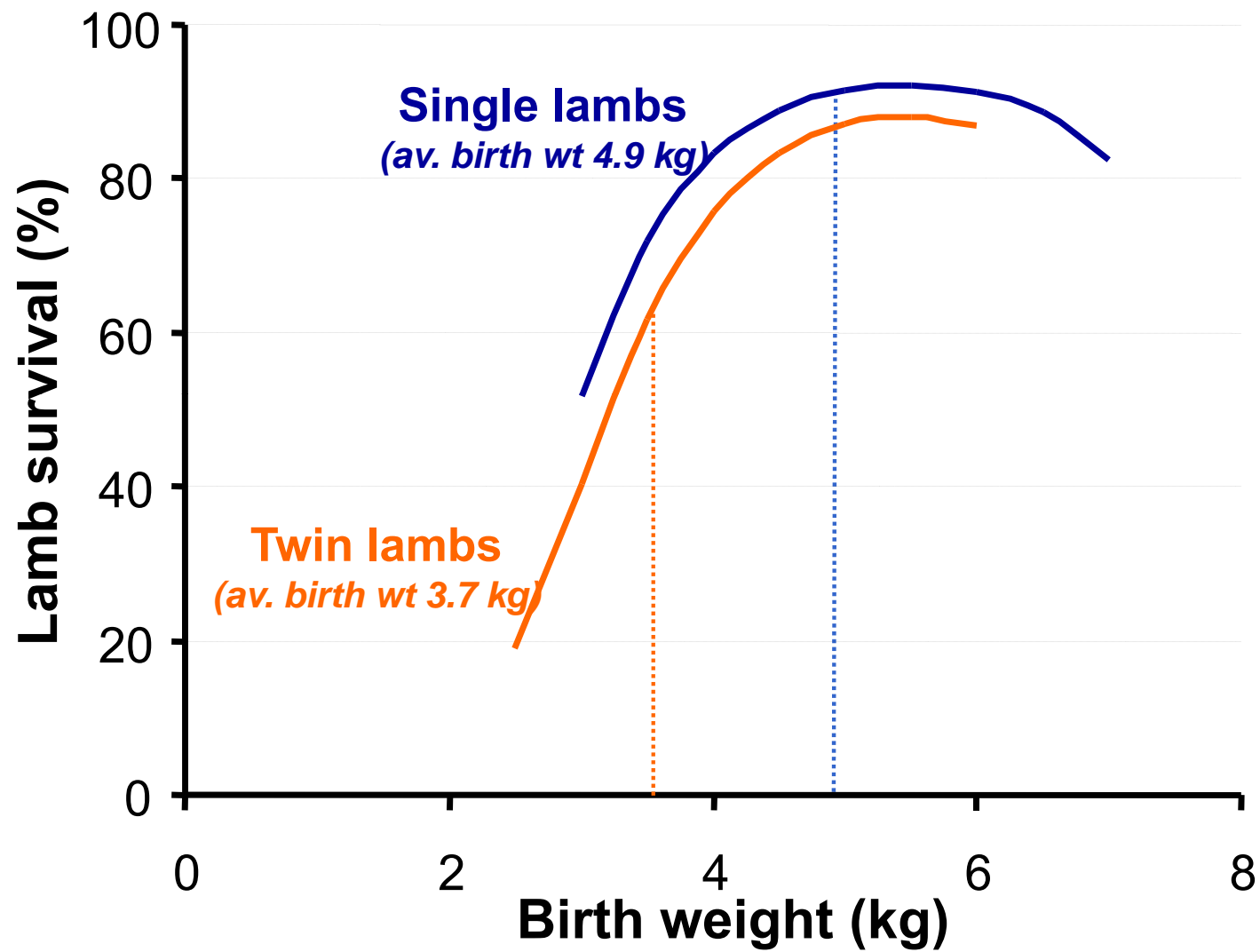
# The developing lamb: The processes ewe management can effect



# Progeny survival increases with improved ewe nutrition



# Lamb birth weight drives survival



# Lambing paddocks

## **A lambing paddock should provide:**

- Adequate feed and water
- Minimal disturbance
- Shelter
- Freedom from predators
- Privacy

# Ewes Lambing / Day, Mob Structure (singles & twins alone) Lamb Survival (1985-1988)

1985	Lambs/day (range)	Survival %
Singles	low 0-16	99.1
	med 17-32	94.3
	high 33-48	95.7
Twinners	low 0-16	83.3
	med 17-32	80.0
	high 33-48	63.0



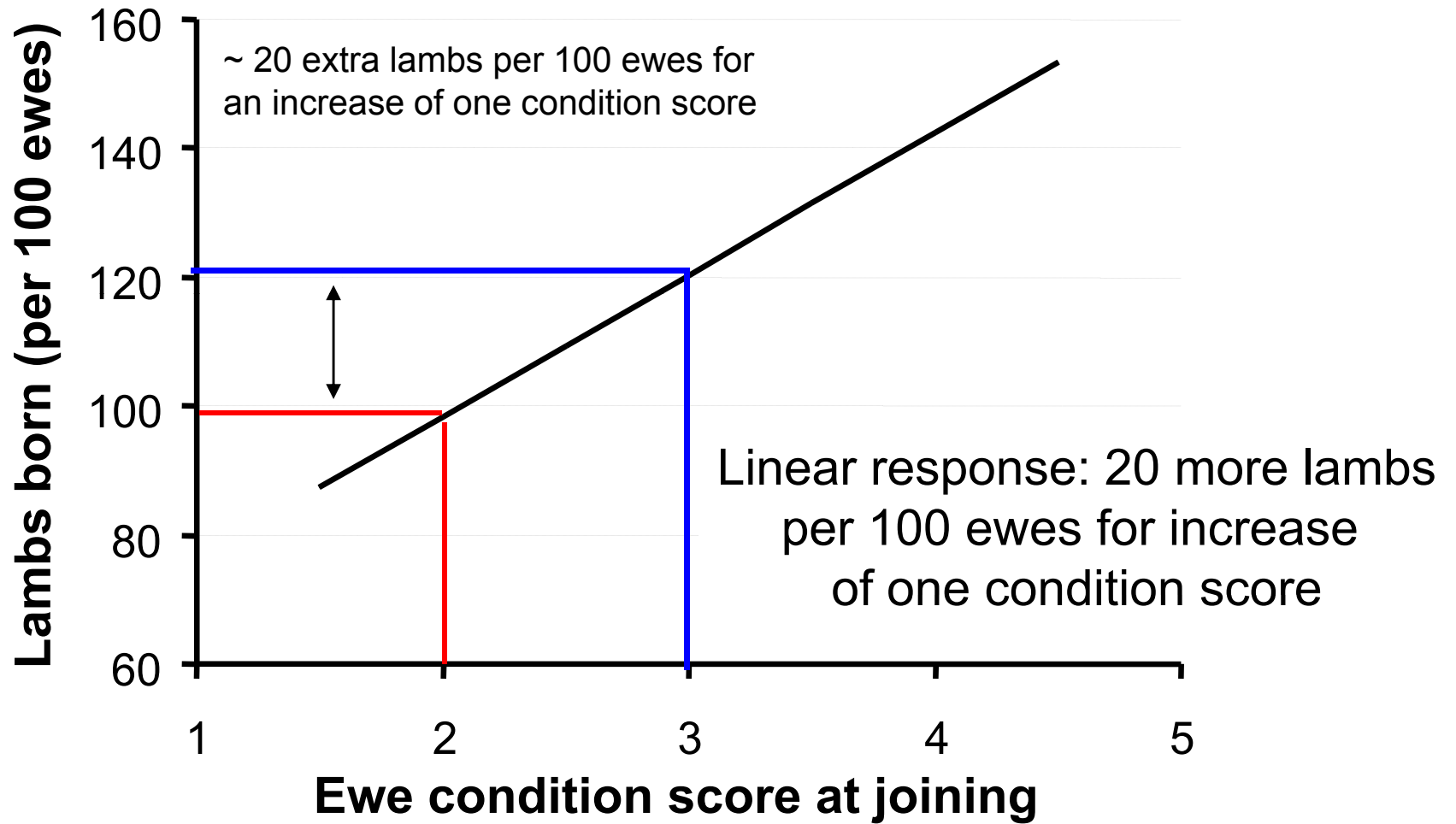
ALS Doug Fowler 2006

# Mob size recommendations

<b>Mob type</b>	<b>Maximum recommended number/mob</b>
Twin bearing mature ewes	200
Single bearing mature ewes	400
Single bearing maiden ewes	300



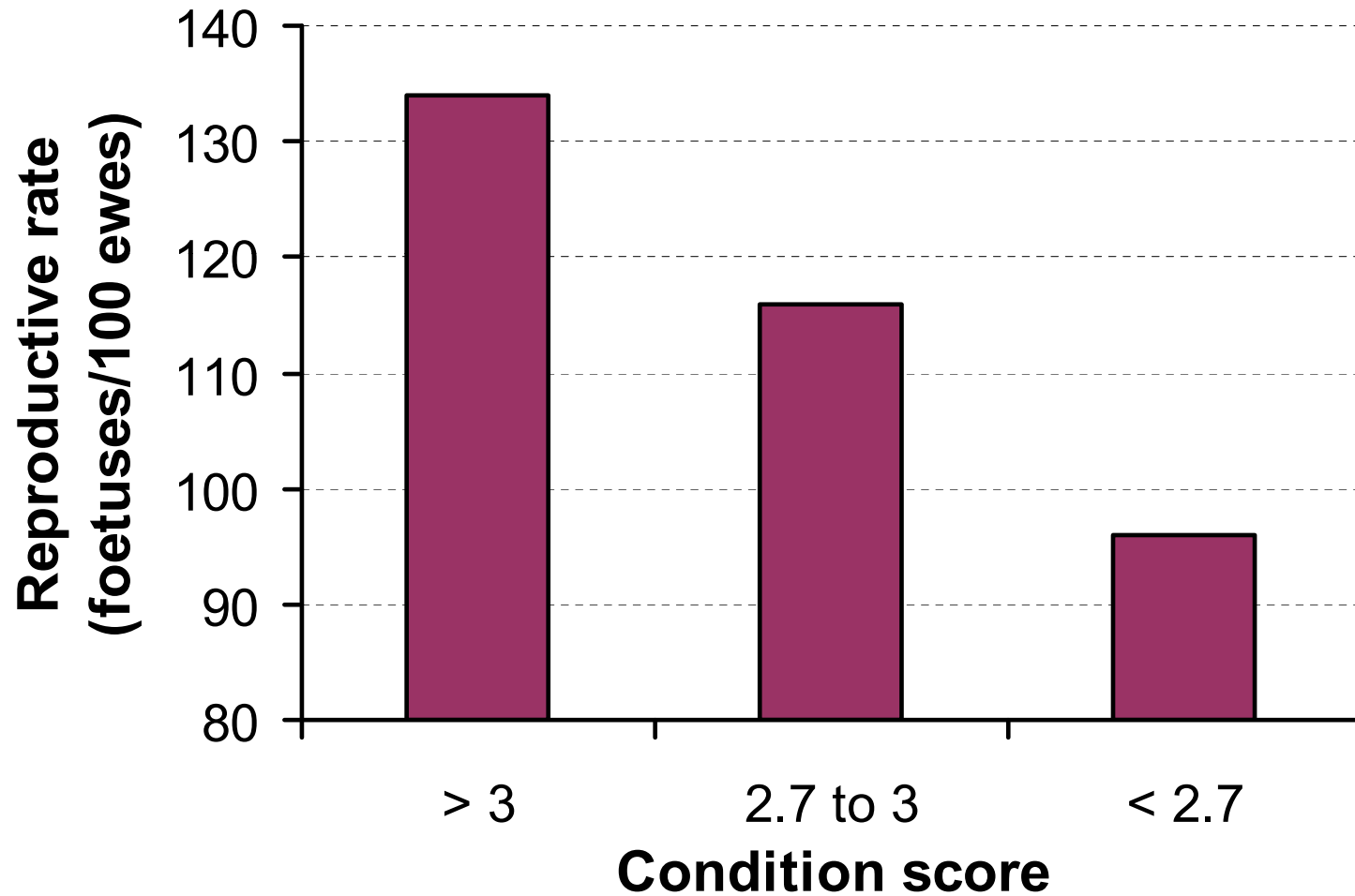
# Number of lambs born is determined by ewe condition score at joining



## Case studies – condition score and scanning performance

Farm/location	Low CS	High CS	Extra foetuses/CS
Edenhope (maidens)	74	112	+60
Skipton	112	164	+45
Ararat	124	149	+44
Edenhope	78	106	+27
Edenhope	110	130	+25
Ararat	132	147	+25
Dunkeld	92	103	+13

# Case study – scanning performance of ewes in different condition at joining



**What is the right ewe?**

# What is the right ewe?

- Fertile- 3% SIL per kg ewe body weight
- Efficient- kg lamb : kg ewe  
(wean 100% ewe wt at 14 wks)
- Resilient- what's the right measure?  
(ability to cope with stresses)  
WEC, Fat, Early maturity  
Growing seasons shorter

**What is the right management?**

# Lifetime Ewe Management

A program for sheep producers



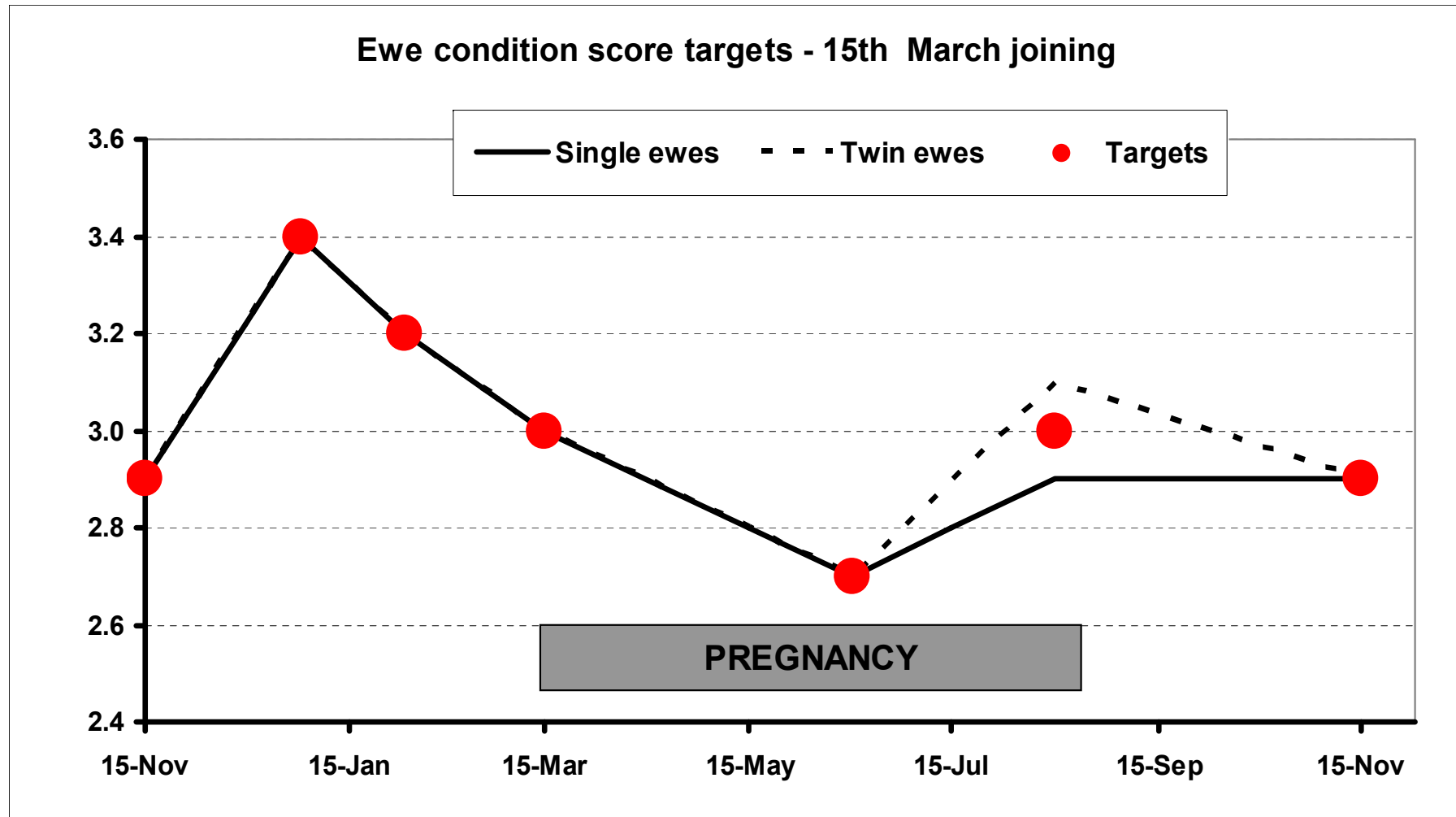
# Objectives of LTEM

- Improve understanding of the impact of ewe nutrition on ewe and progeny performance
- Develop skills and confidence to adopt LTEM management guidelines
- Demonstrate on participants properties that LTEM guidelines are practical and profitable

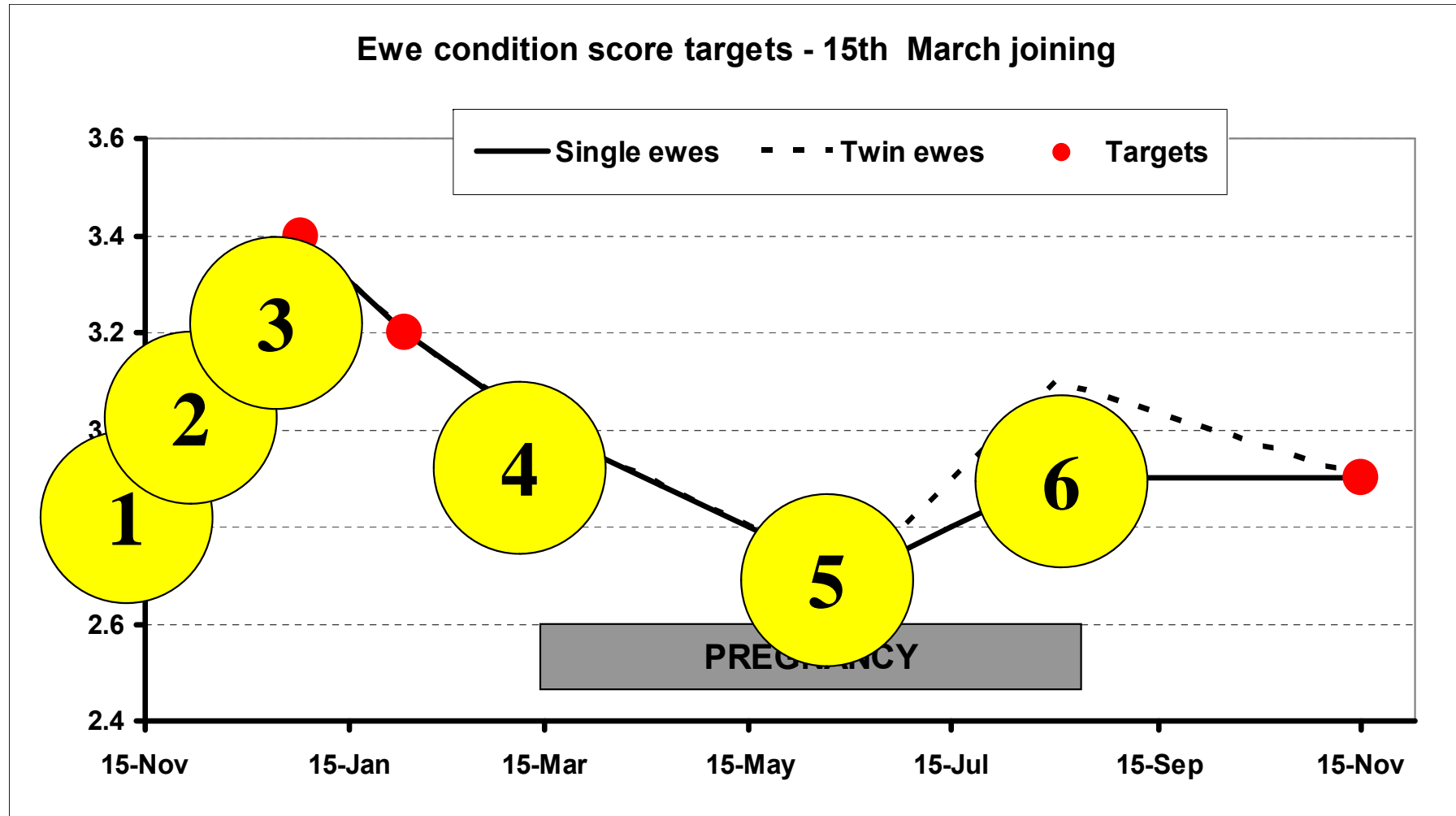
# Structure of LTEM

- Structured to maximise knowledge retention, skills development and practice change
- *'Tell me and I will forget, show me and I may remember, involve me and I will understand'*
- 'MEASURE TO MANAGE'
- Groups of 5 producers, 6 sessions per year
- Guided by a skilled facilitator

# Sessions strategically timed



# Sessions strategically timed



# Participation in LTEM

- In 2006 23 LTEM groups were formed
- 92 producers enrolled (07 & 08 intakes since)
- Ewes- 173,369 crossbred ewes  
194,478 merino ewes joined to merino  
53,016 merino ewes joined to other

-----  
420,863  
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# Reactions to LTEM

- Overall satisfaction score 8.6 out of 10 (7-10)
- Improvement in farm business 7.2/10 (4-10)
- For enabling producers to implement change 75% of participants felt LTEM is superior to any other program
- 91% of participants have recommended LTEM to other producers

# Change in knowledge

	2005	2008
CS is a quick and reliable tool for managing ewes	2.4	4.9
Production from ewes and their progeny can be predicted by the ewes CS profile	2.8	4.8
Farm profit is responsive to ewe CS throughout the year	2.8	4.6
Lamb survival is strongly influenced by ewe nutrition during pregnancy	3.4	4.9
Improving ewe nutrition during pregnancy ↑ progeny fleece wt and ↓ fibre diameter	2.8	4.6

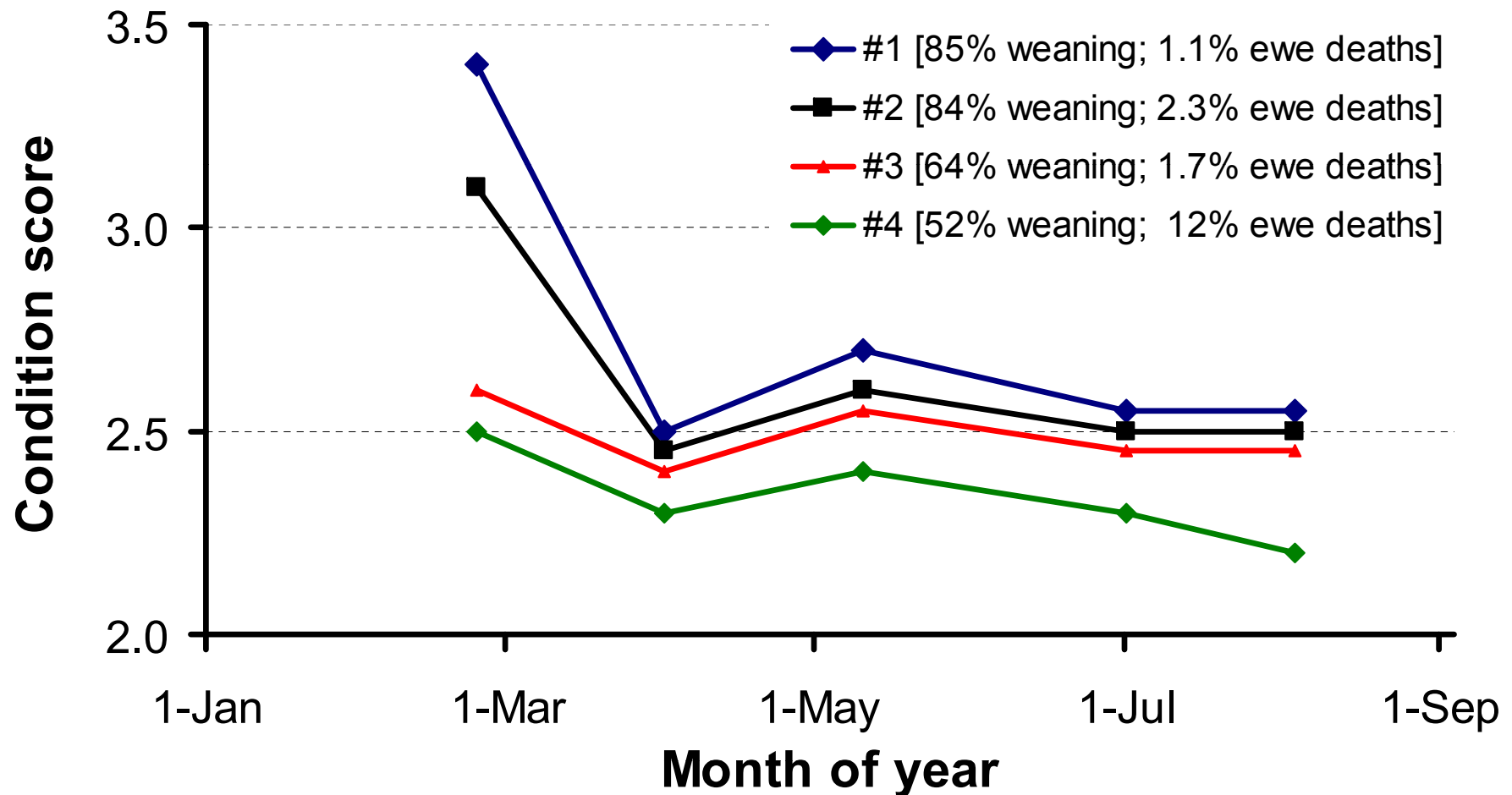
Ewe LWT	Ewe CS	Ewe LWT	Ewe CS	Ewe LWT	Ewe CS
28.5	1.7	<b>39.5</b>	<b>3.0</b>	<b>43.5</b>	<b>3.3</b>
30.0	2.0	42.5	3.0	44.0	3.3
51.5	2.5	43.5	3.0	44.0	3.3
<b>41.5</b>	<b>2.7</b>	43.5	3.0	44.5	3.3
41.5	2.7	44.0	3.0	44.5	3.3
42.5	2.7	46.0	3.0	46.0	3.3
44.0	2.7	47.5	3.0	46.5	3.3
44.5	2.7	48.0	3.0	47.0	3.3
44.5	2.7	49.0	3.0	47.5	3.3
45.0	2.7	49.0	3.0	48.5	3.3
45.5	2.7	49.0	3.0	48.5	3.3
46.5	2.7	53.0	3.0	50.5	3.3
48.0	2.7	53.0	3.0	51.0	3.3
48.5	2.7	53.0	3.0	52.0	3.3
57.5	2.7	55.0	3.0	<b>55.0</b>	<b>3.3</b>
<b>60.5</b>	<b>2.7</b>	<b>56.5</b>	<b>3.0</b>	59.5	3.5

- Data from over 60 farms involved in LTW research has shown on average there is a 17 kg spread for the same CS

# Change in attitude to profit drivers

	2005	2008
Fertiliser applied	4.3	4.5
Stocking rate	4.3	4.5
Cost of production	4.2	4.6
Production per hectare	4.3	4.7
Production per head	3.1	4.1
Managing ewes to CS targets	2.6	4.5
Lamb marking percentage	3.5	4.4
Precise supplementary feeding decisions	2.9	4.5

# Farmer case studies - ewe condition score profile, weaning rate & ewe mortality



# Change in management skills

	2005	2008
Condition scoring (CS)	2.3	4.3
Assessing pasture- FOO/Quality	2.2	4.2
Interpreting Feedtest results	2.6	4.2
Managing ewes to CS targets	1.9	4.1
Managing a higher stocking rate system	2.4	4.1
Calculating ME balance on ewes	1.4	4.2
Precise supplementary feeding decisions	1.9	4.3
Allocating mobs to paddocks based on FOO and ME requirements	2.3	4.4

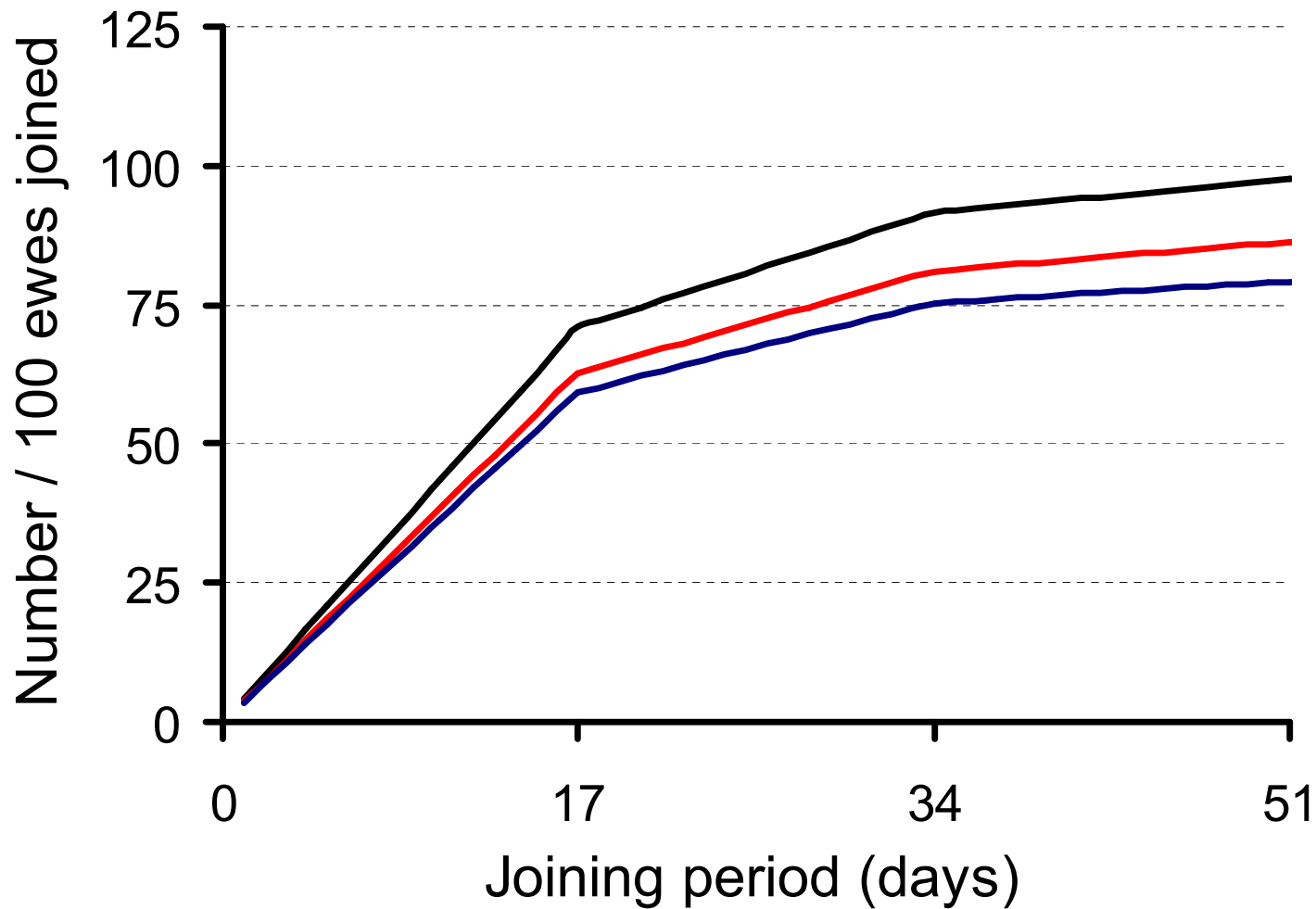
# Changes in management practice

	2005	2008
Condition scoring (CS)	0.05	0.96
Assess pasture (FOO/Quality)	0.33	0.98
Feedtest supplements/pasture	0.44	0.93
Manage ewes to CS targets	0.09	0.98
Calculate ME balance regularly	0.05	0.94
Adjust rations after CS and FOO	0.08	0.98

# Changes in management practice

	2005	2008
Scan for multiples and separate	0.17	0.64
Draft ewes based on CS	0.08	0.76
Allocation based on FOO & ME	0.26	0.95
Joining length of 5 weeks or less	0.35	0.80
Quantify lamb survival rates	0.15	0.56
Quantify ewe mortality rates	0.63	0.90

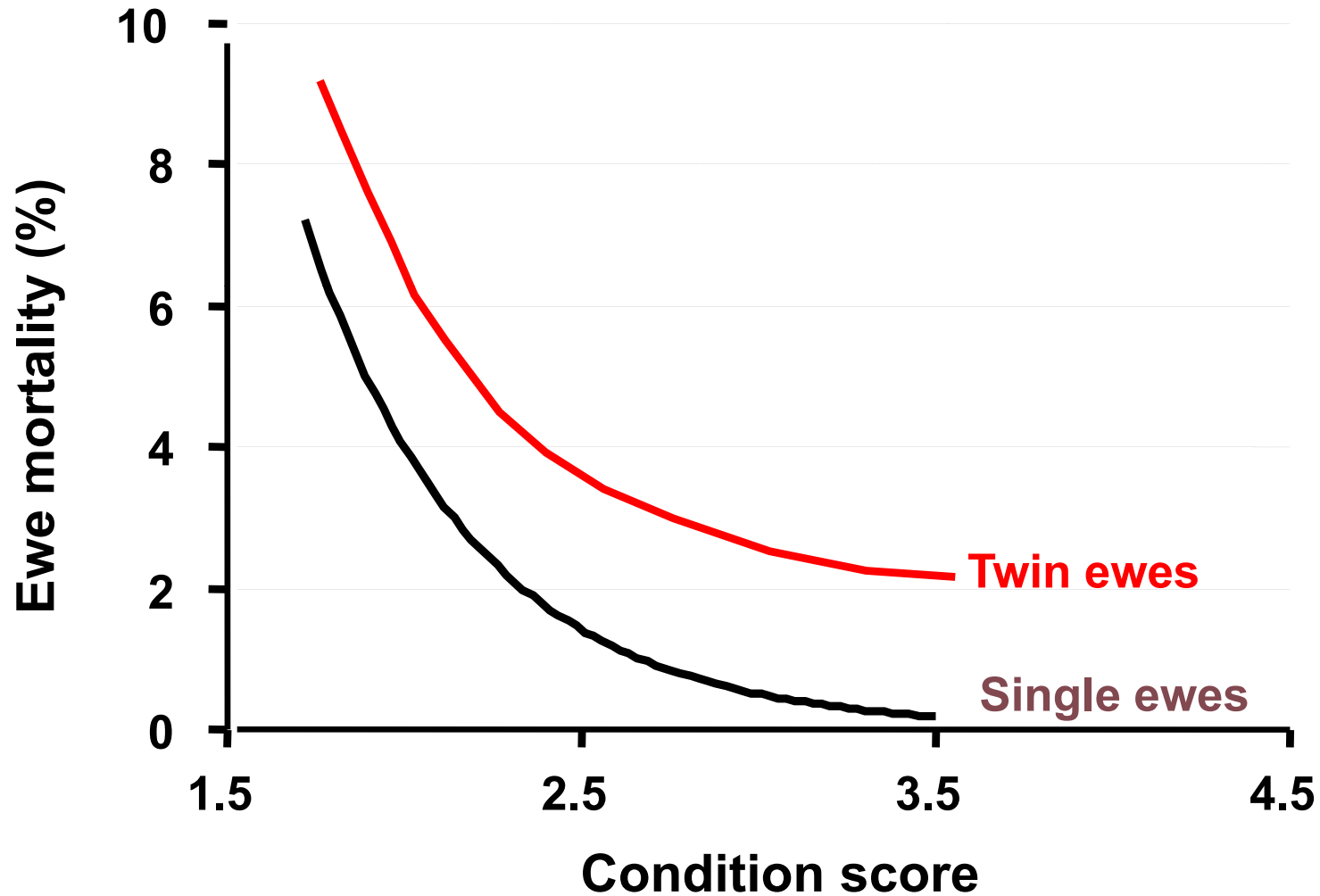
# Joining length, ewe conception and lambs alive at weaning and 12 months



# Change in productivity settings among LTEM participants

	2005	2008	Change
Farm size (ha)	1176	1194	+2%
Area cropped (ha)	64	199	+211%
Stocking rate (dse/ha)	12.2	13.9	+14%
Lambing % (Crossbred)	111	126	+14%
Lambing % (Merino to Merino)	73	84	+15%
Lambing % (Merino to Other)	82	92	+12%
Ewe mortality %	4.5	2.5	-44%

# Ewe mortality in late pregnancy



# Value of productivity changes/ha

- Increase in stocking rate & ewe wool = \$18.70
- Reduction in ewe mortality = \$ 5.70
- Increase in lambs weaned = \$23.90
- Better wool from Merino lambs = \$ 1.10

**Total value  $\approx$  \$50/ha or \$50,000 per farm**



**Contact RiST and join LTEM**

**(03) 55730943 / 0408386896**

Or read:

*Making More From Sheep*

## **Turning Pastures into Product**

Livestock performance on Pasture

## **Wean More Lambs** (Managing scanned ewes)

Improving flock reproduction rates

## **Healthy and contented sheep**

Managing weaners